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A SYSTEM

OF

OBSTETRICS

ON

Homœopathic Principles

BY

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TO

E. C. FRANKLIN, M. D.,

PROFESSOR OF SURGERY IN THE HOMŒOPATHIC MEDICAL COLLEGE OF MISSOURI;

IN TOKEN OF ADMIRATION OF HIS GREAT GENIUS AND ERUDITION,

THIS VOLUME IS DEDICATED

BY HIS FRIEND

WM. C. RICHARDSON.

PREFACE.

In offering this work to the profession I indulge the hope that it may merit approval as a *practical* treatise on midwifery. The medical profession of the nineteenth century, has neither time or inclination to pour over page after page of theories; the great desideratum seems to be, to have all the information possessed on a subject condensed into as few words as possible. With this fact in view, I have endeavored in the succeeding pages to include only that which will be found of utility in actual practice.

In the preparation of the work, I have made use, (often employing the exact language) of the following well known authors: Ramsbotham, Leishman, Playfair, Meaddows, Churchill, Meigs, Chailly, Thomas, Clay, Swayne, Cazzeau, Verrier, etc.; of homœopathic authorities, Ruddock, Ludlam, Raue, Leadam, Croserio, and others have been drawn from, whenever they were found to cover the grounds under consideration, although at first, I had intended to give each authority credit; with Tyler Smith "I soon found, that obstetric authors of all countries, from the time of Mauriceau downwards, had copied each other so freely, without acknowledgement, as to render it difficult, or impossible to trace the originals."

The engravings are some original, the others taken from standard authorities of the present day, and in procuring them

no expense has been spared, as I am fully satisfied that in many instances a diagram or drawing will enable one to arrive immediately at a comprehension of what would otherwise be difficult or perhaps impossible.

The therapeutics of the various diseases have, for the most part, been written by my friend, Adolph Uhlemeyer, M. D. Professor of materia medica in the Homœopathic Medical College of Missouri, the chapter on Hygiene by Prof. J. C. Cummings, and the two chapters on Functional Dystocia by Prof. Edwin M. Hale, of Chicago. Dr. S. A. Legg has had supervision of the proofs, a disagreeable duty, but one that I am pleased to say has been well performed.

I return many thanks to Messrs. Aloe and Hernstein, and A. M. Leslie & Co., of St. Louis, for the use of cuts of the various instruments described, and to many friends who have assisted me in various ways.

St. Louis, October, 1877.

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A

SYSTEM OF OBSTETRICS

On Homœopathic Principles.

PART I.

ANATOMY AND PHYSIOLOGY OF THE GENERATIVE ORGANS.

CHAPTER I.

THE PELVIS.

No one can arrive at a correct knowledge of the science and art of midwifery who has not first been made thoroughly familiar with the anatomy of the pelvis, we shall therefore at once proceed to its anatomical consideration.

The pelvis or basin, considered as a whole, may be said to resemble a truncated cone, the base being directed upwards and forwards, and the apex backwards and downwards.

It is composed of four bones, the two *ossa innominata*, the sacrum and coccyx.

The Os Innominatum is a non-symmetrical bone, irregularly quadrilateral, being twisted as it were on itself, and is larger at the extremities than in the middle.

It is composed originally of three bones, the *ilium*, *ischium* and *pubis*, which in infancy are seperated by cartilage, but when adult age is arrived at, they are solidly united and form the os innominatum, which makes up the side and front of the pelvis.

It presents for consideration, an external and internal face and four borders, the external face seen from above, shows a large surface, alternately concave and convex, which is known as the external iliac fossa; below this is seen the cotyloid cavity or *acetabulum* which receives the head of the femur internally and below which is found the obturator foramen. The internal face is divided into two portions, an upper and lower; the upper is a large smooth concavity known as the internal iliac fossa, posteriorly there is a large articulating surface which serves to join the bone to the sacrum. The inferior portion presents laterly a quadrilateral plane which is situated over the acetabulum; in-

Fig. 1.

EXTERNAL SURFACE OF OS INNOMINATUM.

1, Anterior superior; 2, Anterior inferior; 3, posterior superior; 4, posterior inferior spinous processes of ilium. 5, ileo-pectineal eminence. 6, symphisis-pubis. 7, tuberosity of the ischium. 8, obturator foramen 9, spine of the ischium.

Fig. 2.

INTERNAL SURFACE OF OS INNOMINATUM.

1, Anterior superior; 2, anterior inferior; 3, posterior superior; 4, posterior inferior spinous processes of ilium. 5, ileo-pectineal eminence. 6, symphisis pubis. 7, tuberosity of ischium. 8, obturator foramen. 9, spine of ischium. 10, iliac fossa. 11, ileo-pectineal line. 12, articulating surface of sacro-iliac joint. 13, rough surface that affords attachment for posterior sacro-iliac ligaments. 14, spine of pubis.

ternal to this is seen the obturator foramen and in front is found the internal surface of the pubis and ischium. The superior border is the *crest* of the ilium which resembles somewhat an italic "*f*;" it terminates in front in the anterior-superior spine of the ilium, and behind in the posterior-superior iliac spine. The inferior border is formed by the pubis and ischium; the anterior border is concave and offers the anterior-superior iliac spine, also the anterior inferior iliac spine and the ileo-pectineal eminence. The posterior border is very irregular and presents above the posterior-superior iliac spine, then a depression, after which is the posterior-inferior iliac spine, below which is the great sacro-sciatic notch, and finally, the *spine and tuberosity of the ischium.*

The Sacrum.—The Sacrum forms the posterior part of the pelvis, and is situated between the iliac bones, is above the coccyx and articulates above with the last lumbar vertebra, forming an angle which is known as the promontory of the sacrum. The general form is like a triangular pyramid, hollow and slightly curved; the concavity being in front. It offers for consideration an anterior and posterior face, two lateral borders, a base and an apex. *The anterior or pelvic face* which is smooth and concave, is interrupted by four transverse depressions which mark the point of union of the five bones, of which in early life the sacrum is formed; on both sides of the center are four oblique openings or foramina through which the anterior sacral nerves are transmitted

The *posterior face* is convex, very rough, and in the center is seen the *sacral crest,* on either side of which is a depression pierced by four openings, through which the posterior sacral nerves pass, more externally is found on each side, a rough prominence that serves for the attachment of the sacro-sciatic ligaments. The *lateral borders* are simply broad articular surfaces on either side which join the bone to the ilium. The *base* is directed upwards and forwards, is oval in shape, the longest diameter being transverse; on either side there is a depression which is a continuation of the iliac fossa, and is known as the wing of the sacrum. The *apex* is directed downwards and backwards, and articulates with the coccyx.

THE COCCYX.—The Coccyx partakes of the same general form as the sacrum, and is composed of three bones which in advanced age, say at forty, are united in one; it has an *anterior* and *posterior face* like the sacrum, two *lateral borders* which are tuberculated and afford attachments for the sacro-sciatic ligaments. The *base* is concave and articulates with the convex apex of the sacrum. The *apex* is pointed, and gives attachment to the levator and constrictor ani muscles.

Fig. 3.

The Sacrum and coccyx, internal surface.

ARTICULATIONS OF THE PELVIS.—The bones of the pelvis are firmly held together at the five points of articulation by certain ligaments as follows: at the *symphysis pubis,* the anterior pubic ligament is composed of very thin fibres which cross and recross each other in passing from one pubic bone to the other, the posterior pubic ligament which really is only an expansion of the periosteum, the superior pubic ligament which is thicker than the anterior or posterior, and passes on the upper surface from one bone to the other, the inferior or triangular pubic ligament composed of strong interlacing fibres that fill out the upper part of the pubic arch, and finally, an *interoseous fibro-cartilaginous ligament or disk* which lies between the oval ends of the pubic bones. At the *sacro iliac symphisis* which is formed by the ear, shaped articular surfaces of the sacrum and ilium, and between which is interposed a thin cartilage, we find the anterior sacro-iliac ligament formed by thin fibres spread over the concave face of the sacrum and ilium; the posterior sacro-iliac ligament is composed of a strong bundle of ligamentous fibres extending horizontally from the ilium to the sacrum, the superior sacro-iliac ligament which is very thick, and unites the base of the sacrum to the adjoining surface of the ilium; the inferior or vertical sacro-iliac ligament, a strong fibrous band, that origin-

ates at the posterior-superior iliac spine, and is inserted into a thick tubercle near the third posterior sacral foramen; the *great sacro-sciatic ligament*, a flattened, slightly twisted triangular band, situated at the posterior-inferior portion of the pelvis on either side, it is narrower in the middle than at the ends, one of which is attached to the posterior inferior iliac spine and the entire lateral border of the sacrum and cocyx, the other finding attachment to the tuberosity of the ischium, the *lesser sacro-sciatic ligament* which also has its origin from the border of the sacrum and coccyx and is attached to the outer surface of the spine of the ischium, these last two ligaments give great strength to the sacro-iliac articulation, and they transform the sciatic notches into foramina. The *sacro-coccygeal* articulation includes, between the apex of the sacrum and base of the coccyx, a fibrous disk and synovial membrane, also an *anterior* and posterior ligament composed of parallel fibres, spread over the anterior and posterior surfaces of the bones. At the *sacro-vertebral* articulation is found, between the last lumbar vertebra and the base of the sacrum, a fibro-cartilaginous interosseous disk, which is much thicker anteriorly than posteriorly, and several ligaments in front and behind which are continuations of the vertebral ligaments. Finally there is the *obturator membrane* which fills up, with the exception of the superior portion, the obturator foramen.

The Pelvis as a whole.—The pelvis serves to contain the organs of generation, to support the uterus during gestation and to give passage to the fœtus at term. The articulations, although destined principally to unite the various bones, serve also to ameliorate the shocks to which this portion of the skeleton is liable to receive in walking, running, jumping, &c., and it is especially in pregnancy that this office is useful. The *external surface* of the pelvis may be divided into four regions, the *anterior* presenting in the median line the symphisis pubis, and to either side the body of the pubis, also the horizontal portion of that bone and the obturator foramen; the *posterior* region is constituted by the rough convexity of the sacrum, the *lateral* regions are formed by the external iliac fossa above, below by the outer surface of the sacro-sciatic ligaments, the sacro-sciatic foramina, and more to the front the cotyloid cavities.

The Internal Surface, which is of great importance to the student of midwifery, is divided by the ileo-pectineal line into two portions, an upper or false, and lower or true pelvis. The *false pelvis* is much the largest and is formed in the living subject, anteriorly by the abdominal walls, posteriorly by the last lumbar vertebra and laterly by the internal iliac fossa.

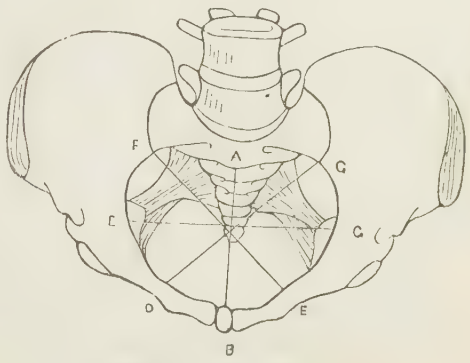
The True Pelvis has the shape of a bent tube, slightly constricted at the extremities, the anterior wall is formed by the posterior surface of the pubic bones and the obturator membrane, the posterior wall by the concavity of the sacrum and coccyx and the lateral walls by a large quadrilateral osseous surface, the inner surface of the sacro-sciatic ligaments and the planes of the sacro-sciatic foraminia. The true pelvis is bounded above and below by the superior and inferior straits between which is found the excavation.

The Superior Strait or Inlet is bounded by the *line* that separates the false from the true pelvis; this line is formed posteriorly by the sacro vertebral angle, the wings of the sacrum and the ileo pectineal line, (which is the indistinct line that forms the termination of the internal iliac fossa,) anteriorly by the inner border of the horizontal portion of the pubis. The shape of the superior strait is a rounded triangle, the base being backwards and the apex forwards, it has been compared to the heart of a playing card. It possesses a plane, an axis and four diameters. The plane is in the erect posture, pitched at an angle of about sixty degrees from backwards, downwards and forwards. The axis is represented by a line passing from the umbilicus to the point of the coccyx. The diameters are the *antero-posterior or sacro pubic*, which measures, from the sacro-vertebral angle to the symphisis pubis, *four inches*. The two oblique diameters are measured, the left from the left ileo-pectineal eminence to the right sacro-iliac symphisis, the right from the *right* ileo-pectineal eminence to the left sacro-iliac symphisis, the *oblique diameters* measure *four and three-fourths inches*.

The *transverse diameter*, extending from the middle of the lower border of the iliac fossa on one side to the same point on the other, measures *five inches*. The *circumference* of the superior strait is thirteen and a half inches.

THE INFERIOR STRAIT OR OUTLET is irregularly oval, the longest diameter being the antero-posterior, it is bounded anteriorly by the pubic arch, laterally by the ischium and sacro-sciatic ligaments, posteriorly by the coccyx. The plane of the inferior strait in the erect posture, is inclined at an angle of eleven degrees from backwards and upwards to downwards and forwards, the *axis* is represented by a line extending from the sacro-vertebral angle to a point midway between the tuberosities of the ischia. The *antero-posterior* diameter of the inferior strait is *four inches*, but during the passage of the fœtal head is, owing to the mobility of the coccyx, extended one inch more, making it *five inches*. The *transverse diameter*, is from one tuberosity of the ischium to the other, *four and one-fourth inches*. The *oblique diameter*, extending from the point of union between the ascending ramus of the ischium and the descending ramus of the pubis of one side to the middle of the sacro-sciatic ligament of the other, is *four and one-half inches*.

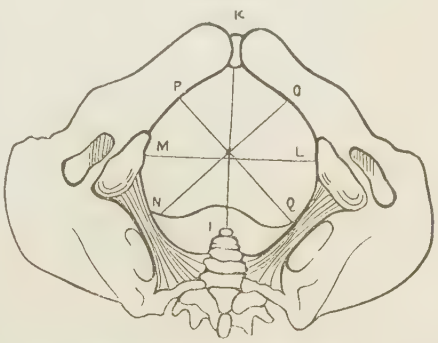
Fig. 4.



THE PELVIS SEEN FROM ABOVE.

A. B. antero-posterior; C. D. right oblique; E. F. left oblique; E. G. transverse diameters of the superior strait.

Fig. 5.



THE PELVIS SEEN FROM BELOW.

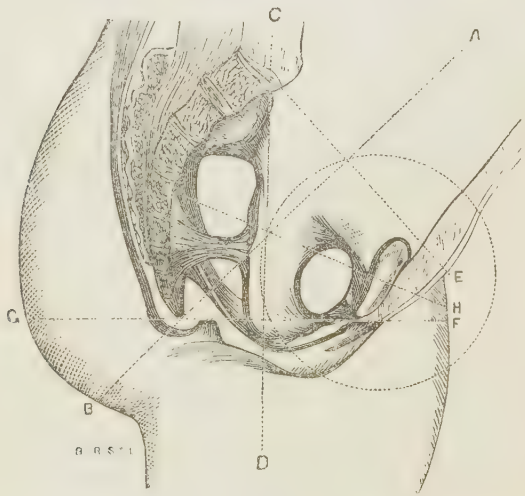
I. K. antero-posterior; N. O. left oblique; P. Q. right oblique; M. L. transverse diameters of the inferior strait.

THE EXCAVATION is the cavity situated between the planes of the superior and inferior straits, it has an axis plane, four diameters and two inclined planes. The *plane* of the excavation

is situated in the centre, its boundaries are the centre of the lateral walls, anteriorly the centre of the symphisis pubis and posteriorly at a point midway between the promontary of the sacrum and the tip of the coccyx. The diameters of the excavation are *antero-posterior, four and half inches,* transverse, *four and three fourths inches, oblique five inches.*

The Inclined Planes are situated anteriorly on either side of the symphisis pubis, and are formed by the planes andtuberosities of the ischium, a portion of the ilium, the rami of the pubis and the obturator membrane. The inclined planes assist in rotating the head, which during labour is, owing to the resistance of the perineum, kept in contact with them. The direction of the surfaces of the inclined planes is from above downwards and obliquely forwards. The *axis* of the excavation may be found by making an antero-posterior section of the pelvis, placing one point of a pair of compasses at the centre of the symphisis pubis, opening the other point until

Fig. 6.



A, B. Axis of superior; C, D, of the inferior straits; E, plane of superior; F, G, of inferior straits; H, plane of excavation.

it will touch the axis of the superior strait, then moving it downward, it will pass through the axis of the excavation, also by con-

tinuing the downward movement, through the axis of the inferior strait, this curved line is known as *Carus' Curve.*

Difference between the male and female pelvis: the male pelvis is deeper and not so wide as the female, the bones are not so smooth, are much heavier, the articulating surfaces larger, the articulations much firmer, the pubic arch much narrower, the wings of the ilium less flaring, the sacrum less concave, the tuberosities of the ischii nearer together; the superior strait longest in the antero-posterior diameter and the sacro-vertebral angle not so prominent. In the *mongolian and negro races* it is said that the transverse diameter is shorter and the conjugate longer than in the European, but to counterbalance this, the diameters of the fœtal head are also different. The dimensions of the pelvis in man are far greater, comparatively speaking, than in the lower animals. The pelvis is considerably modified by the soft tissues that cover it, thus, as has been previously stated, the entire anterior wall of the false pelvis is composed of the abdominal muscles; the iliac and psoas muscles fill up the internal iliac fossa on either side, diminishing considerably the transverse diameter, the sacro-pubic diameter remains almost the same, but the right oblique is sensibly lessened by the rectum. The excavation is diminished laterally by the pyriformis and obturator muscles; in front by the bladder and urethra; behind to the left by the rectum; also numerous arteries, veins and nerves; pressure on the latter by the fœtal head, on its passage during labor, often causing cramps. The inferior strait in the skeleton is largely open, but in the living subject is filled up by the *floor of the pelvis*, which is made up of the levator and sphinctor ani, the transversus perinei, the coccygeus, the constrictor vaginæ muscles and several layers of facia. The perineum is the space between the posterior commisure of the vulva and the coccyx, and ordinarily is about three inches in length, but during labor is distended to five or six inches, or even more.

CHAPTER II.

THE ORGANS OF GENERATION.

EXTERNAL.—The *vulva* is a longitudinal fissure, situated at the lower end of the body, beneath the mons veneris and in front of the perineum, directly in the median line; it offers for consideration the *mons veneris*, a rounded eminence, composed of adipose tissue, covered with a growth of hair and situated over the pubis. The *labia majora* are two prominent folds of integument, extending on either side, from the mons veneris to the perineum. Their external surface is covered with hair, the internal is smooth, moist and pink colored in virgins, but in multiparæ, or women who have born children, it is a bluish purple; at the point where they unite posteriorly, is situated a fold of mucous membrane, by which they connect one with the other; this fold is known as the *fourchette*, and is usually destroyed by being torn during the first labor; posterior to the fourchette is situated the *fossa navicularis and then the posterior commisure;* the labia majora are composed, in addition to the fold of integument, of adipose tissue and are well supplied with nerves and blood vessels, and contain the vulvo vaginal glands and the termini of the round ligaments. The *labia minora* are two folds of mucous membrane, situated on either side, just beneath the labia majora, they unite anteriorly above the clitoris, forming what is known as the *prepuce* of the clitoris, and posteriorly become less distinct, until finally lost in the vaginal mucous membrane. The *clitoris* is a small erectile, very sensative, pinkish colored tubercle, situated about half an inch behind the anterior commissure or anterior junction of the labia majora, it is composed principally of the corpora cavernosa and is covered by mucous membrane. The *meatus urinarius* is the external orrifice of the urethra and is situated about an inch below and behind the clitoris, and immediately in front of the small tubercle, which ends the anterior wall of the vagina, and which serves as a guide for the introduction of the catheter. The *urethra* is the canal leading from the meatus to the bladder;

PLATE I

Fig. 1

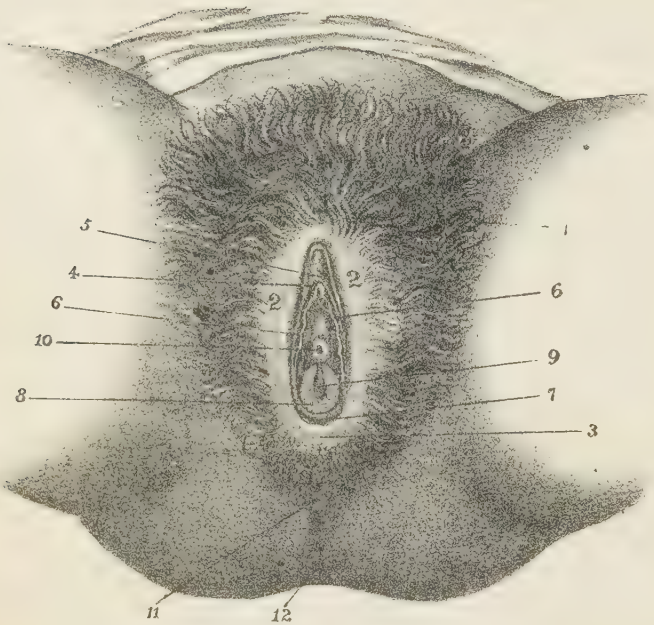
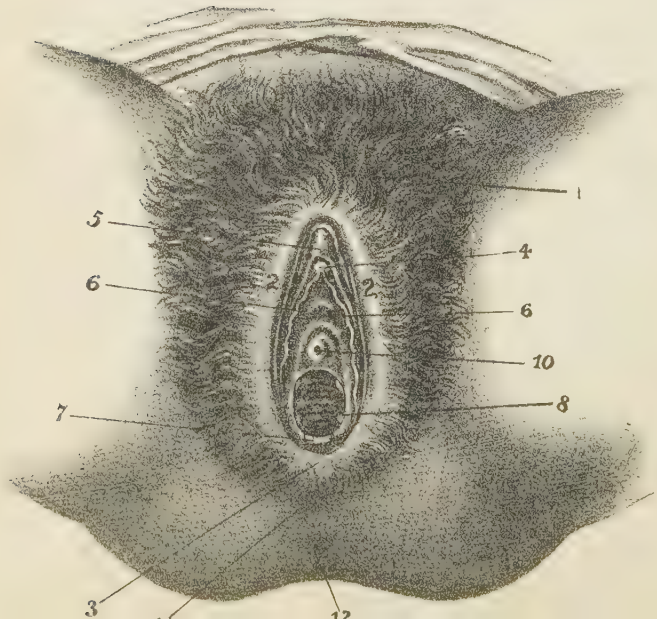


Fig. 2



Explanation of Plate One.

THE EXTERNAL ORGANS OF GENERATION.

Fig. 1.—*The organs of a virgin.*

1.—The mons veneris.
2.—The labia majora.
3.—The posterior commisure.
4.—The clitoris.
5.—The prepuce.
6.—The labia minora.
7.—The fourchette.
8.—The hymen.
9.—The entrance to vagina.
10.—The meatus urinarius.
11.—The perineum.
12.—The anus.

Figure 2.—*The organs of a woman that has born children.*

1.—The mons veneris.
2.—The labia majora.
3.—The posterior commisure.
4.—The clitoris.
5.—The prepuce.
6. The labia minora.
7.—The fourchette.
8.—The caruncula myrtiformis.
9.—The entrance to vagina.
10.—The meatus urinarius.
11.—The perineum.
12.—The anus.

it is about two inches in length. The *vestibule* is a small triangular space, about an inch in length, anterior to the meatus, which forms its base, posterior to the clitoris, which is the apex, and is bounded laterally by the labia minora. The *hymen* is situated at the orifice of the vagina, and is the membrane which separates the external from the internal organs of generation, it is formed of mucous folds, and is pierced by one or more small openings, which permit the escape of the menstrual flux, the remains of this membrane after rupture are several small tubercles which are known as the *carunculæ myrtiformes.* The *vulvo vaginal or cowpers glands,* two in number, are found in the posterior lateral portions of the vagina, near its orifice, they are conglomerate, and each possesses an excretory duct, which opens in the vicinity of the anterior caruncula myrtiformis; they secrete a limpid fluid, which is discharged during sexual excitement and labor. The *muciparous glands or folicules* are grouped about the lateral and anterior walls of the vagina, near its orifice and secrete a fluid that lubricates the parts.

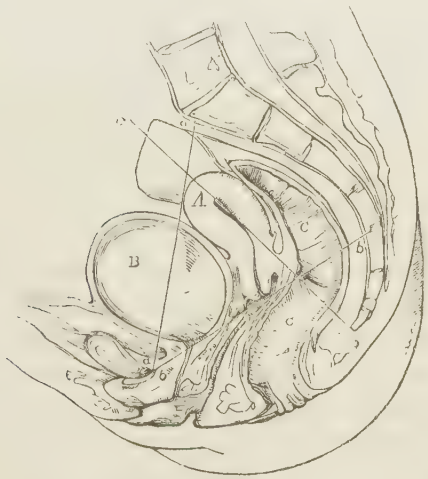
The Mammary Glands may also be considered under the head of external organs of generation; they are two in number, situated on either side of the median line and over the anterior superior portion of the thorax; they are hardly perceptible before puberty, but at this epoch suddenly develope into prominent hemispherical eminences, covered by a fine white integument and surmounted by a conical projection; the *nipple* which is surrounded to the extent of about an inch in virgins by a rose colored surface, the *areola;* this areola enlarges and assumes in women who have born children, a purple brownish color. The mammary gland is flattened posteriorly and is composed of adipose and connective tissue, and an agglomeration of numerous lactiferous glands that are united into lobules, from which proceed excretory ducts, known as the galactophorous ducts; they receive their radical branches from the lactiferous or milk glands, these ducts unite in the vicinity of the areola, and form several large sinuses, which serve as reservoirs for the storage of the milk; from these sinuses several small ducts lead to the surface through the nipple.

Internal Organs of Generation.—The *vagina* is a mem-

branous canal, extending from the vulva to the uterus, situated in the excavation of the pelvis, between the bladder in front and the rectum behind, it is curved forward in the line of Carus' curve, it is in form a flattened cylinder, the anterior and posterior walls being in apposition, the length is variable, the anterior wall ordinarily being about three and a half and the posterior five inches, the upper extremity encircles the cervix uteri, and the lower is closed by the *sphincter vagina muscle.* *Structure.*—The vagina is formed of an external fibro cellular, a middle muscular, composed of two layers, and an internal mucous tunic, it possesses numerous longitudinal and transverse folds or rugæ, which render it highly distensible.

The Uterus is the organ of gestation, and destined as such

Fig. 7.



PELVIC ORGANS IN SITU.

A. uterus. B. bladder. C. rectum. *a. a.* plane of fundus. *b. b.* plane of os. *c* axis of uterus.

to receive and contain the fecundated ovum till maturity, and then expel it; the uterus is situated in the pelvic cavity, above the vagina, and between the rectum and bladder, it is covered above by the lower portion of the peritoneum, which partly envelops the upper half, and composes principally the several uterine ligaments, which are very lax, and permit a free mobility of the

organ. The uterus is directed from above, downwards, and from forwards, backwards, in the axis of the superior strait, it forms at its junction with the vagina an obtuse angle of such a nature as to bring the anterior lip lower than the posterior, and is normaly slightly antiflexed or bent forward.

Size, weight and shape.—The uterus in the virgin adult measures three inches in length, two in breath, one in thickness and weighs about ten drams; in women who have born children, the size is about one-fifth greater than here given, and in old age it becomes atrophied to about half the normal dimensions. The uterus is pyriform in shape, the largest end being upwards; there is a slight constriction at the lower third, where the neck terminates and the body begins; it presents for consideration an external and internal surface.

External surface.—The anterior face is slightly convex and the upper two thirds is covered by peritoneum, and is partially adherent to the posterior wall of the bladder; the posterior surface is more rounded and is separated in its entire length from the rectum by a fold of the peritoneum; the lateral surfaces are somewhat concave, and afford attachment for the broad ligaments. The base or *fundus* is the large rounded upper third, to which is attached laterally the round and ovarian ligaments and the Fallopian tubes; the *body* is the middle third, and tapers gradually to its junction with the neck or *cervix*, which at about its middle gives attachment to the vagina, the lower or sub vaginal portion of the cervix is covered with mucous membrane, and is divided by a transverse depression into an anterior and posterior lip, the anterior being the largest, between these lips is the *os externum* which leads to the internal surface, the os externum is much larger, more round, and the lips thicker in the multipara than in the virgin.

The *internal surface* is very small compared with the general dimensions of the uterus, and is divided into two cavities. The *cavity of the cervix* is situated between the os externum and the mouth of the cervix or *os internum*, at each of which it is slightly constricted, the general shape is that of a tube flattened in the antero posterior diameter, the length is about one inch. *The*

cavity of the body is one and one-fourth inches in length, one and a fourth in breath, is triangular in shape, each angle being pierced by an opening, the lower being the os internum and the two lateral, very small, the internal orifices of the Fallopian tubes; the cavity is flattened, the anterior and posterior walls being almost in apposition, the lining is a mucous membrane, which is freely interspersed with rugeosities, especially on the posterior wall.

Ligaments.—The uterus is held in position by two anterior or *vesico uterine*, two posterior or *recto uterine*, and two lateral or *broad ligaments*, all being composed of folds of the peritoneum, also the round and ovarian ligaments which are attached to the external lateral upper angles; the *round ligaments* pass from their origin obliquely outward, through the inguinal rings, and are lost in the tissues that make up the labia majora; the *broad ligaments* are divided into three folds, the posterior containing the ovaries and their ligaments, the middle, the Fallopian tubes, and the anterior, the round ligaments.

Structure.—The uterus is composed of three layers, the external or serous, which is derived from the peritoneum, the internal or mucous which is a continuation of the vaginal lining, and is the seat of numerous follicles that secret lubricating material; the middle or muscular is composed of muscular fibres, interspersed here and there with fibrous tissues, that run in every conceivable direction.

Vessels.—The arteries that supply the uterus with blood, are branches from the ovarian and hypogastric, which enter the uterus from the sides, between the folds of the broad ligaments. There are numerous veins, and two sets of nerves, one derived from the sacral plexus and the other from the great sympathetic.

The Fallopian Tubes or Oviducts are two in number, situated one on either side of the uterus in the pelvic cavity, their direction is from the uterine attachments outwards to the ovaries, they are enveloped in the broad ligaments, the length is three and a half to four inches, and at the outer or free extremity, they are trumpet shaped and slit up into numerous fringe like ends; this is known as the abdominal of *fimbriated* extrem-

Explanation of Plate Two.

THE INTERNAL ORGANS OF GENERATION.

Fig. 1.—The uterus and appendages.

1.—The fundus.
2.—The body.
3.—The cervix.
4. 4.—The Fallopian tubes.
5. 5.—The fimbriated extremities of the Fallopian tubes.
7. 7. and 8. 8.—The broad ligaments.
9. 9.—The round ligaments.

Fig. 2.—Transverse section of the uterus seen from behind.

1. 1. 1.—The Walls of the uterus.
2.—The cavity of the uterus.
3.—The cavity of the cervix.
4. 4.—The cavities of the Fallopian tubes.
5. 5.—The fimbriated extremities of the Fallopian tubes.
6. 6.—Section of the ovaries showing Graafian vesicles.
7. 7.—The anterior wall of the vagina.

Fig. 3.—Antero posterior section of the uterus showing the left half.

1.—The anterior wall of the uterus.
2.—The posterior wall of the uterus.
3. 3.—The cavities of the body and cervix.
4.—The anterior lip of the os uteri.
5.—The posterior lip of the os uteri.
6.—The vagina.

Fig. 4.—Transverse section of the uterus showing an impregnated ovum a few days after conception.

1.—The walls of the uterus.
2.—The cavity of the uterus.
3.—Plug of the mucous filling up the cavity of the cervix.
4. 4. 4.—Congested Mucous lining of the uterus commencing to develop the decidua.
5.—Ovum attached to the uterus with the decidua reflexa beginning to form.
6.—The vagina.

PLATE II

Fig. 1

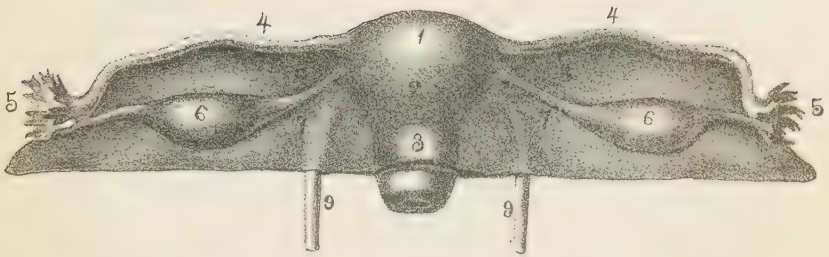


Fig. 2

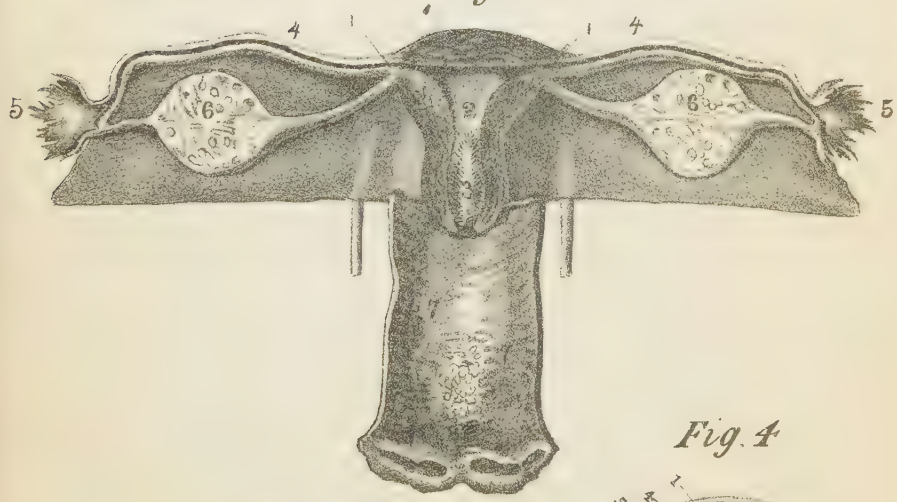


Fig. 3

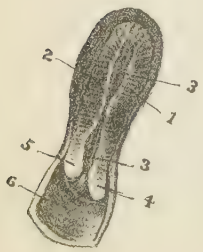
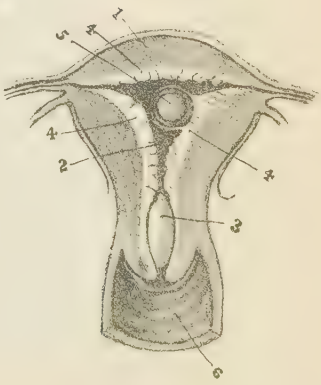


Fig. 4



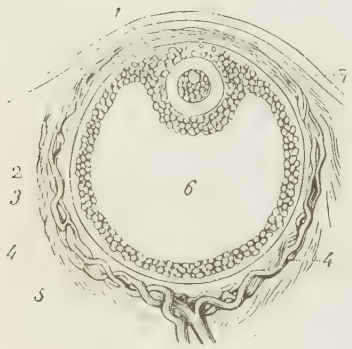
ity, which adapts itself to the surface of the ovary during the period of ovulation, grasping the ovum and conducting it through the canal of the tube to the superior angle of the uterus. They are composed of three coats like the uterus, an external serous, internal mucous, and a middle muscular.

THE OVARIES are two whitish ovoid bodies about the size and shape of an almond, that is, say an inch long, three-fourths of an inch broad, and half an inch thick, flattened from before backwards, enveloped in the broad ligament, on either side of the uterus, to which they are attached at the inner end by the round ligament, at the outer extremity they adhere to a portion of the fimbriated extremity of the Fallopian tube. They are small, comparatively speaking, in infancy and old age, being largest during the child bearing epoch; the right ovary is usually larger than the left.

Structure.—The ovaries have been compared to the male testes, but the structural difference is considerable.

The outer covering of the ovary is peritoneal or serous, beneath which is found the *tunicia albuginea*, a firm, dense structure, closely adherant to the *stroma*, a pale pinkish, areola like structure, composed mainly of blood vessels, that forms the bulk of the ovary, and in which may be found the *Graafian vesicles*, several of which may usually be detected on the surface of the ovary, and on making a section, hundreds, even thousands of various sizes may be found; the Graafian vesicles are formed of two membranes, the external, similar in structure to the stroma of the ovary, and richly supplied with vessels; the internal coat is an epithelial layer. The ovum occupies a small portion of the interior of the vesicle, which is filled with an albuminous fluid, near the inner wall of the vesicle, granular in character, forming the *membrana granulosa*, one side of which is thicker than the other, and contains the ovum, which is composed of an outer covering, the *vitelline membrane* enclosing a transparent fluid, the vitellus, in the centre of which is found the *germinal vesicle*, in one side of which is found the *germinal spot*. The ovary ordinarily presents on its surface a brownish yellow tubercle, known as the *corpus luteum*, it is the ciccatrix, con-

Fig. 8.



GRAAFIAN VESICLE.

1. vitelline membrane enclosing vitellus, germinal vesicle and germinal spot. 2. membrana granulosa. 3. membrane of the graafian vesicle. 4. vessels of the vesicle. 5. tissue of the ovary. 6. cavity of the vesicle. 7. parieties of the ovary.

taining a certain amount of extravasated blood, where the Graafian vesicle was ruptured at the last previous ovulation.

MENSTRUATION is the periodic sanguineous discharge from the uterus, through the vagina, that occurs in a healthy woman once every twenty-eight days, during the period existing between puberty and the climacteric, and is simultaneous with *ovulation* or the rupture of a Graafian vesicle, and discharge of the ovum through the Fallopian tubes, uterus and vagina. The age of puberty is from twelve to fifteen years, and the climacteric from forty to fifty, that is in temperate climates, but in warm climates both periods occur considerably earlier, and in cold, later. The menstrual flux, is of from two to eight days duration, and is preceded by lassitude, irritable temper, vertigo, flushed face, pains in the lumbar region and hips, dark circles around the eyes, and general nervous susceptibility. It is said that menstruation is always suspended during the period of utero gestation and lactation, but according to my observation this is not the case. I am satisfied that fully one-third of all women menstruate during lactation, and occasionaly there are cases in which the discharge continues during gestation.

The menstrual discharge is sometimes vicarious as in epistaxis, hæmoptysis, hæmatemesis, or a periodic dysentery, in which case the discharge is from some other place than the congested mucous lining of the uterus. During the menstrual epoch, that is from puberty to the climacteric, healthy women are liable to conception or impregnation, that is, if there are no impediments, such as obstruction of the Fallopian tubes, diseases or malformations of the ovaries or uterus.

CHAPTER III.

CONCEPTION.

In the human species, generation is the result of the union, through copulation, of the spermatazoa or fecundating germ furnished by the male, with the ovum or germ of conception of the female. The point of union of these germs may be in the ovary, in the Fallopian tube or its fringed extremity, or in the cavity of the uterus, as is easily proven, by numerous cases of gestation in all the above mentioned situations, but in the great majority of instances, even if impregnation does occur at the ovary or in the tube, the ovum finds its way into the uterus before it has arrived at any considerable degree of development. The manner in which the ovum, whether impregnated or not, is conveyed from the Graafian vesicle to the uterus, is as follows: at the time of rupture of the vesicle, the fimbriated extremity of the Fallopian tube, by a kind of erection of itself, becomes attached to the surface of the ovary over the point of rupture, thus grasping the ovum on its escape, and conveying it into the tube through which, by means of contractility and certain villi that line the tube and have their free extremities slanted towards the uterus, it is carried towards its destination, the womb. The spermatazoa find their way to the ovum through the cavities of the uterus and Fallopian tubes.

Prof. C. W. Spalding holds that the soul of man is propagated equally with the body. "That the germ of the soul exists in the spermatozoa, and that the germinal force from whose activity the soul is developed is derived from the masculine blood."

It is plain that the body of the fœtus is from the mother, and he accepts the theory first propounded by Swedenborg, that the soul is from the father. "The spermatozoa therefore contains the organizing force which constructs the body from the amorphous materials furnished by the mother; and this with the lower animals as well as with man."

He further says "that the type or species of the animal depends on the character of the force resident in the spermatozoa. Here is manifested the most interior principle of life that belongs to the species."

"In man this interior principle is the source from which springs the germ of the soul; or it is the force by whose activity the germ of the soul is organized and constructed. In the lower animals this force agrees in character with the type of life pertaining to the respective species, to which the animal belongs."

Sex of Offspring.—Several theories have been advanced as to the manner of the reproduction of sex, among the earliest was that the right ovary and testicle contained the male germ, and the left the female; this theory was exploded by persons who had lost one of these organs, bringing forth offsprings of both sexes. Another theory is, that in case conception results shortly after menstruation, the offspring will be a male, and if a short time before, a female. This theory is based on statistics collated by certain Swiss stock breeders, and while it may to a certain extent, prove true among the lower animals, will be found unreliable in the human family. A more probable theory, is that the parent that is the least excitable during copulation, is the one that determines the sex, that is, in case the male is the last to thrill or complete the act of congress, the offspring will be a male, and vise versa. Finally, statistics show that in marriages in which the mother is older than the father the majority of children are female, and in case the father is the older the majority are male.

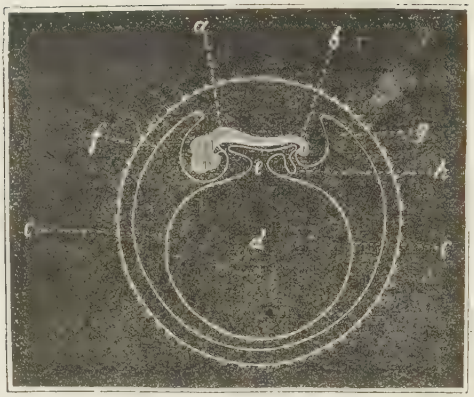
At the menstrual period, when the ovum is impregnated in the ovary, the most frequent point of impregnation perhaps, it undergoes during the six or seven days of its passage through the tube, and the nine months of its retention in the uterus, a series of remarkable transformations beginning with the disappearance of the germinal spot, and germinal vesicle, it next absorbs from the surrounding tissues a thick coat of albumen that gradually develops into villosities. During its passage through the tube it undergoes segmentation, which is the division and subdivision of the vitellus into numerous cells until the entire vitellus has the appearance of a mulberry; by the time of arrival

into the uterus the ovum presents within the vitelline membrane another, the *blastodermic*, which is formed by the union of the flattened cells of segmentation nearest the surfaces. The blastodermic membrane is next divided or split into two membranes, an external and internal; the ovum at this stage presenting on the outside the vitelline membrane, sometimes called the zona pellucida, next the external and finally, the internal blastodermic membrane, within which is found a transparent fluid. After the ovum has become imbedded in the villosities of the uterus, there appears on the external blastodermic membrane an elevation, the *area germinativa*, which should not be confounded with the germinal vesicle that has long since disappeared. The external layer of the blastodermic membrane is known as the serous or *animal* layer, and develops into the spinal column and organs of animal life, the internal is the mucous or *vegetative* layer from which is developed the intestinal canal and organs of vegetative life.

Corpus luteum of pregnancy.—This is a mass that is formed on the surface of the ovary after the rupture of the Graafian vesicle and escape of the ovum; it is at first composed of extravasated blood and is brownish in color, like the corpus luteum of menstruation, but becomes after a time considerably larger and yellow, and remains during gestation and frequently during lactation, after which it is absorbed.

We will now proceed with the development of the ovum; the area germinativa as it increases in thickness, pushes toward the cavity of the ovum, the internal blastodermic membrane, it gradually increases in size and becomes elongated, but being limited by the parieties of the ovum, it assumes a curved form convex internally and concave externally; in the centre of the area germinativa there appears an obscure line, which is gradually developed into the embryo, in this manner the two extremeties of the line are reflected on themselves, thus forming, the larger, the cephatic, and the smaller, the caudal extremity, the serous coat of the blastodermic membrane is reflected entirely over the body of the embryo, meeting on the concavity to form the spinal column. Up to this time the reflected portion of the blastoder-

Fig. 9.

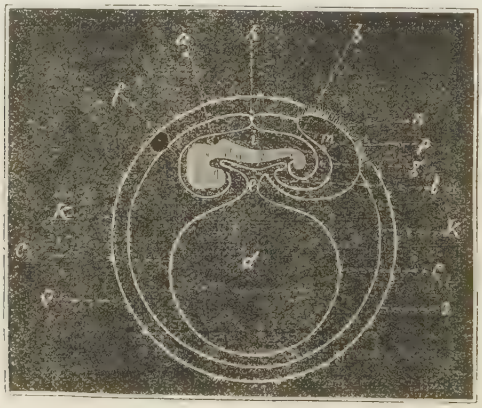


SECTION OF THE HUMAN OVUM.

a. b. embryo. *f. g.* reflection of serous coat of the blastodermic membrane. *c. c.* vitelline membrane. *e.* umbilical duct. *d* umbilical vesicle. *h* alantois

mic membrane is in immediate contact with the embryo, but now a liquid begins to be secreted from the inner surface of this new envelope of the embryo, a fluid in which it, the embryo, is floating; thus we have formed the *amniotic* liquor and the *amnion*, which is a reflection of the serous layer of the blastodermic membrane, and is gradually enlarged and distended by the

Fig. 10.



SECTION OF OVUM FARTHER DEVELOPED THAN IN FIGURE 9.

a. b. embryo. *f. g.* reflected ends of membrane uniting at *i. h.* *c. c.* vitelline membrane. *d.* umbilical vesicle. *e.* umbilical duct. *k.* amnion. *l. m.* alantois. villi of chorion at side of future placenta; *o.* chorion.

fluid which it secrets, until it comes in contact with the vitelline

membrane. During this time the mucous or internal layer of the blastoderm is compressed into two portions by the gradually approaching caudal and cephalic extremeties of the embryo, until they nearly meet, the outer one constituting a kind of bladder, the *umbilical vesicle*, that communicates with the internal portion of the mucous layer, and from which the intestines are now forming. In the umbilical vesicle is first seen a trace of the circulatory vessels, two arteries and two veins, the *omphalo mesenteric;* the extremities of these vessels that are within the embryomic portion of the membrane develope into the superior mesenteric arteries and the vena porta. The umbilical vesicle which contains a yellowish white liquid that serves to nourish the embryo up to the time of formation of the placenta, is gradually compressed by the developing amnion, until it becomes at about the thirty-fifth day a mere pedicle, hardly discernable in the umbilical cord. At about this time there arises from the inferior portion of the intestinal cavity, another small pyriform vesicle, the *alantois*, that developes rapidly, until it comes in contact with the chorion, when it is reflected in either direction, until the reflected ends meet, thus covering the entire internal surface of the chorion. The office of the alantois is to pave the way to the fœtal circulation; it contains two arteries coming from the internal iliac, and one vein that finds its way to the liver; these vessels penetrate the chorion through the villosities of that membrane. After about ten days have elapsed the alantois and the alantoid vessels, except those that are over the region of attachment of the ovum to the mucous surface of the uterus, become atrophied and finally disappear about the time of the formation of the umbilical opening in the abdomen. Those vessels of the alantois that are over the seat of attachment of the ovum to the uterus, form the rudimentary vascular structure of the placenta.

The Decidua.—At the time of conception the uterus becomes suddenly enlarged through an increased supply of blood to its parieties, the mucous lining is hypertrophied and convoluted, the mucous follicles enlarge, the cavity of the cervix is filled up with a mucous plug, a kind of pavemented epithelium

is formed that soon develops into a membrane covering the entire inner surface of the cavity of the uterus; this is the *decidua vera*. On the arrival of the impregnated ovum in the uterus, it finds a lodgement in one of the convolutions of the thickened membranous lining, and the epithelial layer above referred to develops a proliferation of cells that are reflected over the ovum from either side till they meet and unite, thus encircling the ovum in another envelope, the *decidua reflexa*. The external surface of the decidua reflexa is smooth and the internal shaggy, especially at that point on the ovum where it is nearest the uterus, and where is commenced the formation of the placenta. The decidua vera and reflexa are, it is thus seen, really only one membrane; between these folds is found a fluid which is gradually absorbed as the developing ovum pushes the decidua reflexa towards the decidua vera. At about the third or fourth month the two membranes come in contact and are united. Their office is to prevent a premature expulsion of the ovum.

Fig. 11.

The manner of formation of the decidua reflexa.

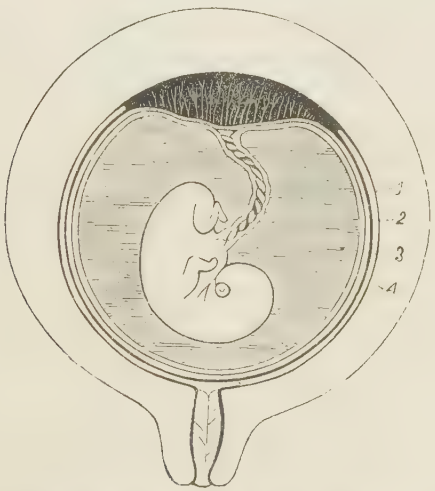
The Amnion is the inner covering or envelope of the embryo, and is formed, as has already been described, from the inner layer of the blastodermic membrane. It is smooth and shining, and from its inner surface is secreted the amniotic liquor in which the fœtus floats; between its external surface and the chorion is found an albuminous fluid, known as the *vitriform body*.

The Chorion is the outer envelope of the embryo, and is formed by a union of the external blastodermic and vitelline membranes; it is thin, smooth on the inner, and covered with villosities on the outer surface. These villosities are especially abundant at the seat of attachment of the ovum to the uterine parieties where they interlace with the villosities of the decidua, forming a vascular mass, the placenta.

The Placenta is the organ of connection between the embryo and mother, and through which the former receives from

the blood of the latter, by a kind of endosmosis, its nourishment; it is round something like a flattened cake, thicker in the centre than at the circumference, the weight is about twenty ounces, the thickness in the centre three-fourths and at the outer edge one-fourth of an inch, and the average diameter seven inches. The uterine surface is slightly convex and presents numerous fissures that divide the mass into as many lobules, it is covered by a gelatino-mucous tissue, that seperates it from the uterine parieties. The fœtal surface is slightly concave, smooth and shining, covered by the chorion and amnion, through which may be seen numerous vessels that unite at the centre to form the umbilical cord. The placenta is not formed till the end of the third month; it is composed principally of capillary blood vessels that emanate from the fœtus through the villosities of the chorion and other vessels from the uterine system of the mother, which lay in direct contact, but do not communicate directly with one another. It is usually situated on the upper portion, but may be found attached to any part of the internal surface

Fig. 12.



SECTION OF IMPREGNATED UTERUS ABOUT FOURTH MONTH, SHOWING PLACENTA, CORD, EMBRYO AND MEMBRANES WITH THEIR RELATIVE SIZE AND POSITION.

1. decidua vera. 2 decidua reflexa. 3. chorion. 4. amnion.

of the uterus. Sometimes the placenta is, instead of being in

one mass, found to consist of several separate masses more or less isolated from each other, this variety is know as *placenta succenturiæ* and may be the cause of postpartum hemorrhage.

The Umbilical Cord serves to unite the fœtus to the placenta, it is covered by the amnion and contains the two umbilical arteries, the umbilical vein and the pedicles of the umbilical vesicle and alantois, and a gelatinous mass, known as Wharton's jelly. It begins to be developed about the end of the first month, the average length at term is twenty inches; the arrangement of the arteries and vein is in a spiral twist from left to right, the vein occupying the centre. The fœtal extremity is always inserted at the umbilicus, the placental extremity ordinarily in the centre of the placenta, sometimes, however, to one side, occasionally it divides up into several branches that are attached to various places over the placenta. The umbilical cord contains no nerves or lymphatics; sometimes, when the umbilicus is not closed sufficiently, a loop of intestine may be found in the cord which should be replaced carefully before the cord is tied or cut.

The Liquor Amnii is an albuminous, limpid liquid, that, toward the latter end of pregnancy, sometimes becomes viscid, flocculent, or greenish from a discharge of meconium, the quantity is variable, being greater in the earlier stages. It serves to protect the fœtus from external shocks, to facilitate movement, prevent compression, and maintain equable distention of the uterus, it greatly facilitates, when necessary, before the rupture of the amnion, any manœuvers or versions, finally it serves to dilate the os uteri and lubricate the passages when labor sets in.

CHAPTER IV.

THE FŒTUS.

Development of the Embryo.—It is not until about the third or fourth week that the embryo becomes discernible; at this time it is not more than one line in length and is in appearance a gray gelatinous mass. At the second month the ovum has attained the size of a hen's egg, the embryo has attained a length of eight lines and weighs about sixty grains, the extremities are apparent, the head forms more than one-third of the entire volumn, the lips, ears and genital organs may be made out; the umbilical cord is commencing to be inserted in the lower portion of the abdomen and points of ossification appear in the cervical vertebræ, scapula, radius, ribs, occiptal and frontal bones.

At three months the embryo weighs two hundred and fifty grains and is three inches in length, the head is still proportionately large but supported by a neck, the eyes are prominent, the fingers begin to form, the skin assumes consistency and the cord is found inserted near the pubis.

At the fourth month the embryo is designated by the name fœtus, its weight is five ounces, length six inches, the nails are formed on the digits, the muscles are susceptible of contraction, there is meconium in the intestines and the sex may be differentiated.

At five months the weight is ten ounces, length nine inches, hair appears on the head, the sternum and astragalus begin to ossify, the hips are developing and the cord is found further from the pubis.

At six months the length is twelve inches, weight one pound and a half, the pupilary membrane is formed, the lips are closed and the cord is inserted nearer the centre of the body.

At seven months the weight is four pounds, length fifteen inches, the skin is covered with sebaceous matter, the testicles are descending into the scrotum and the fœtus is *viable*.

Explanation of Plate Three.

THE DEVELOPMENT OF THE EMBRYO.

Fig. 1.—The ovum fifteen days after conception.
Fig. 2.—The ovum twenty days after conception.
Fig. 3.—The embryo twenty-eight days after conception.
Fig. 4.—The embryo forty-five days after conception.
Fig. 5.—The embryo two months after conception.
Fig. 6.—The embryo three months after conception.
Fig. 7.—The embryo four months after conception.
Fig. 8.—The embryo five months after conception.

PLATE III

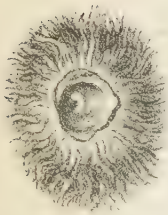


Fig. 1

Fig. 2

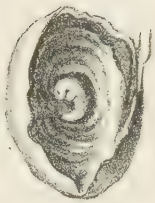


Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

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At eight months the weight is five pounds, length eighteen inches, and the pupilary membrane has disappeared.

At nine months the average weight is seven pounds, length twenty inches. Male children are on an average larger than female.

Attidude.—The foetus in utero is flexed, the head on the sternum, the arms at the side and across the thorax, the thighs on the abdomen and the legs on the thighs. Thus doubled up, it presents an ovoid form, the largest end, the breach, being, upwards in the fundus, the smallest, the head, directed toward the cervix uteri, thus, accomodating itself to the shape of the uterus, which is also an ovoid with the large end uppermost.

ANATOMY OF THE FŒTAL HEAD.—The foetal head is the portion of the fœtus that offers the greatest obstacle to the birth, the form is ovoid, the cranial bones are the frontal, parietal, temporal and occipital, they are seperated by *sutures* and *fontanels* which are membranous spaces between the various bones and permit a certain amount of compression of the several diameters without any injury to the foetal structures; they serve also as guides in ascertaining the exact relative position the head of the fœtus presents to the maternal pelvis.

The *saggital suture* extends from the root of the nose to the superior angle of the occipital bone, passing between the two portions of the frontal bone and the two parietal bones.

The *coronal suture* is at right angles with the saggital and passes between the frontal and parietal bones; the *lambdoidal suture* seperates the occipital from the parietal bones and the *temporal suture* seperates the parietal from the temporal bones.

The *anterior fontanel* or bregma is a losenge shaped membraneous space, situated at the point where the coronal suture crosses the saggital, it is longer antero posteriorly than transversly, the facial angle being sometimes extended to the root of the nose.

The *posterior fontanel* is situated at the point of junction of the saggital and lambdoidal sutures; it is much smaller than the anterior and its shape is triangular. A knowledge of the difference between the anterior and posterior fontanel is of

great importance in forming an opinion as to the position of the presenting head; in addition to the points of difference above

Fig. 13.

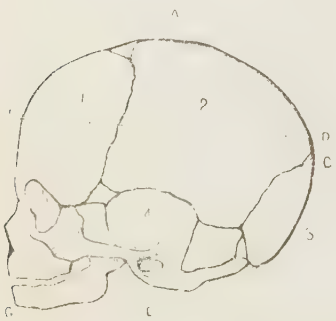
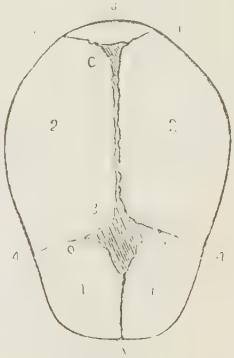


Fig. 14.



FŒTAL HEAD.

Fig. 13. Fœtal Head seen from the side. A. E. cervico bregmatic diameter; 1. frontal; 2. parietal; 3. occipital bones. D. G. occipito mental; D. F. occipito frontal diameters. B. anterior fontanele. C. posterior fontanele.

Fig. 14. Head seen from above. 1. 1. frontal bones. 2. 2. parietal bones. 3. occipital bone. A. saggital suture. B. anterior fontanele. C. posterior fontanele. 4. 4. Coronal suture. L. L. lambdoidal suture.

enumerated, there are, as will be observed on examining the head, four sutures leading from the anterior and but three from the posterior.

Diameters of the Fœtal Head.—The principal diameters of the head are the occcipito mental, which measures five and one-fourth, the occipito frontal four and a half, the cervico bregmatic three and three-fourths and the biparietal three and a half inches.

The fœtal head at term is very compressable, so much that it often is, in passing through the pelvis, considerably elongated and the diameters very much reduced without any injury resulting; it is also very movable on the shoulders, extension being permitted to the extent of allowing the occiput to rest against the back part of the neck, and rotation to the extent of the fourth part of a circle without any harm occuring to the foetus.

Functions of the Fœtus.—*Nutrition.*—Before the development of the placenta, the ovum is nourished by imbibition from the albuminous secretions by which it is surrounded; later the

embryo absorbs the contents of the umbilical vesicle; the vitriform secretion, between the chorion and amnion, also serves as a source of nutrition before the placenta is formed. After the placental circulation is commenced, the umbilical vesicle disappears and the embryo is nourished entirely through the placenta by absorption from the maternal circulation. The fluid conveyed to the foetus through the placenta and umbilical vein, is carried principally to the liver, where it undergoes a transformation that renders it more albuminous and nutritious to the foetal structures.

Respiration.—In the embryo there is of course no such thing as direct respiration through the lungs, nevertheless the placenta imbibes, to a certain extent, oxygen and expels carbonic acid, which accomplishes the same purpose as pulmonic respiration.

Circulation.—The embryonic circulation is completely independent of and isolated from that of the mother. Before the formation of the placenta there exists the omphalomesenteric vessels, which unite the umbilical vesicle to the embryo, and through which the first embryonic circulation is maintained. Before considering the secondary or placental circulation it will be necessary to examine the vascular apparatus of the embryo, beginning with the *fœtal heart*, in which, as in the adult, the two ventricles are separated, but between the right and left auricles is found an opening, the *foramen ovale*, which permits some of the blood to flow from the right to the left auricle. In spite, however, even of this safety-valve, as it may be called, there is yet more blood passing into the right ventricle than the pulmonary artery can convey away; hence another arrangement, the *ductus arteriosus*, a short thick trunk connects the pulmonary artery with the aorta and allows a free escape from the ventricle. The right and left ventricles thus become one, as it were, and the blood from each enters directly into the aorta; the two auricles are also one through the medium of the foramen ovale; the heart, and the circulation of the fœtus at this time resembles that of a reptile.

In the pelvis, after the division of the common iliac arteries into internal and external, the latter go to supply the extremi-

Explanation of Plate Four.

THE PLACENTA, AND FŒTAL CIRCULATION.

Fig. 1.—The Child and its Appendages after the removal of the chest and abdomen, so as to exhibit the Organs of Circulation.

a, *a*, *a*, *a*.—The placenta.
b, *b*.—The umbilical vein.
c.—The umbilical arteries.
d.—A prolongation of the bladder towards the cord.
e.—The branch of the umbilical vein, which empties into the vena porta.
g.—The ductus venosus,
h, *h*.—The inferior vena cava.
i.—The hepatic veins.
j.—The right auricle.
k.—The vena cava ascendens.
l.—The right subclavian vein.
m.—The internal jugular vein.
n.—The left subclavian vein.
o.—The left carotid artery and pneumogastric nerve.
p.—The right ventricle.
q.—The left ventricle.
r.—The trunk of the pulmonary artery.
s.—The ductus arteriosus.
t.—The arch of the aorta.
u.—The thymus gland.
v.—The phrenic nerve.
x.—The right carotid artery, and pneumogastric nerve.
y.—Abdominal aorta.
z.—Primitive iliac arteries.
1.—External iliac arteries.
2.—Internal iliac arteries.
3, 3.—Vesculæ seminales.
4, 4.—Ureters.
5.—Spleen.
6, 6.—Kidneys.
7, 7, 7.—Vascular net-work of the liver.
8.—Umbilical cord.
Fig. 2.—The maternal surface of the placenta.
Fig. 3.—The fœtal surface of the placenta with two umbilical cords.

PLATE IV

Fig. 2

Fig. 1

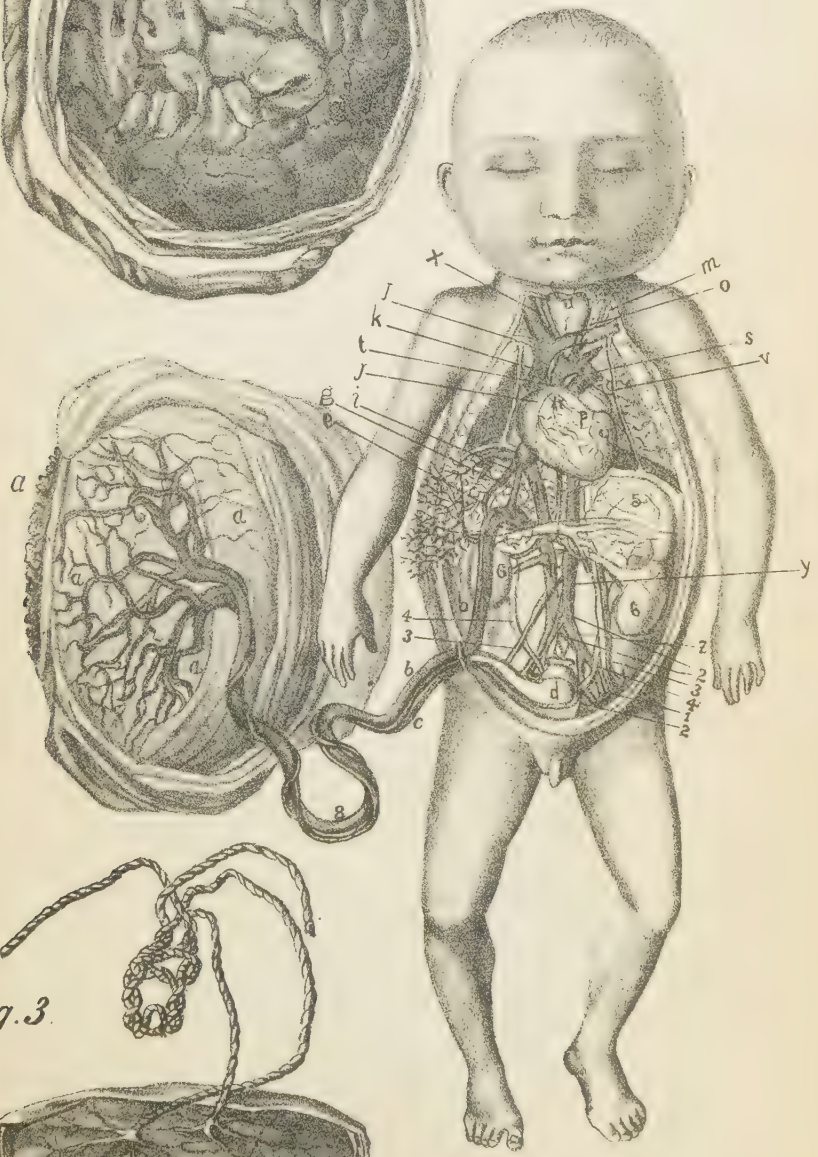
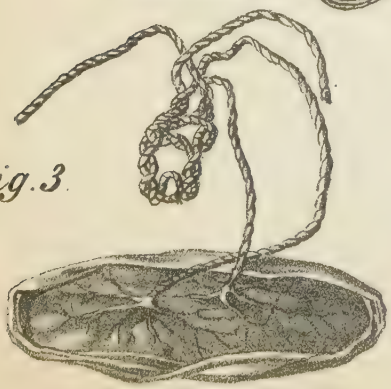


Fig. 3



ties, while the former find their way at once to the umbilicus as the *umbilical arteries*, and are destined through the cord to reach the placenta; returning from the placenta, they unite to form the umbilical vein; in this way the blood re-enters the abdomen at the umbilical orifice, it then passes upwards and along the anterior edge of the suspensory ligament of the liver, giving branches to that organ; after that, it joins directly the ascending vena cava by a short trunk called the *ductus venosus*, or duct of Arantius. This arrangement, which is for no other purpose than the purification of the fœtal blood, is also consequent upon the non-performance of the respiratory function.

The following, then, is the course taken by the blood in the foetus: starting from the placenta it goes by the umbilical vein along the cord into the abdomen and up to the liver; part goes to it, and part passes on through the ductus venosus, to the vena cava ascendens, whence it enters the right auricle; then it passes through the foramen ovale to the left auricle, and so enters the left ventricle, while the right ventricle is filled with the blood which the right auricle receives from the descending cava. The two ventricles contracting, the aorta is filled directly by the left ventricle, and indirectly also by the right, through the intermediary pulmonary artery and ductus arteriosus; through the aorta the blood passes upwards to the head and upper extremities, and downwards to the trunk and lower extremities; having arrived at the internal iliacs, the blood makes a speedy exit from the abdomen through the umbilical arteries, which are now carrying venous blood, and thus it reaches the placenta, the point from which it started.

After birth a great change is effected in the course of the circulation; consentaneous with the first inspiration, the air cells of the lungs are opened up, the capillary surface is consequently considerably increased, a much larger quantity of blood passes into them; the ductus arteriosus is no longer required, it is stretched by the distention of the pulmonary artery; its calibre is consequently diminished, and ultimately it becomes obliterated. At the same time the right auricle throws all its blood into the right ventricle; the left auricle is filled with blood from

the lungs by the four pulmonary veins, and becoming gorged, the blood closes the foramen ovale by the attempt to flow backwards into the right auricle; and hence, in a little while, the septum between the two auricles is made perfect. Moreover, the circulation being arrested through the umbilical arteries, they shrivel up from their origin at the internal iliac artery, and the same thing happens from the same cause in the case of the umbilical vein and the ductus venosus. Thus the circulation is established as it is afterwards to be maintained in adult life.

Secretions.—In the intestines of the fœtus is found *meconium*, which, up to the middle of pregnancy, is a thin grayish liquid, but is afterwards, through the secretion of the bile, colored a greenish black and at the end of pregnancy is found filling the rectum. In the bladder is found more or less urine, in the stomach there usually is a gray, rice water like fluid, and finally the skin is covered with sebaceous matter secreted by the sebaceous glands.

PART II.

PREGNANCY.

CHAPTER I.

DIAGNOSIS OF PREGNANCY.

Changes in the Uterus.—When conception has taken place the uterus undergoes certain changes, first of which is congestion. The uterine vessels enlarge, and form an intricate network; their tortuous courses are more visible; they do not return to their ante-impregnated condition, for their coats are thickened; the calibre of the arteries is less than that of the veins, the effect of this is to retard circulation. The veins, called *sinuses*, have thin coats, and increase greatly in diameter, sufficient sometimes to admit the finger. The uterine tissue is soft, succulent, relaxed and more manifestly muscular. The lymphatics are easily traced in the latter months, and the nerves are enlarged.

In dimensions from a length of three inches, breadth of two, and thickness of one inch, with a superficies of sixteen inches, the uterus develops gradually to twelve or fourteen inches long, nine to ten broad and eight to nine thick.

The increase in size is not dependent on attenuation of its walls; for the three first months the walls augment a little; at five months they are as before impregnation; at term the organ is thicker at the site of the placenta than elsewhere, and thinner at the neck.

In weight, the increase is from eight drachms to two or even four pounds. The increase begins in the fundus, then in the body, lastly the neck is flattened down; the posterior wall increases most rapidly. By these changes the uterus becomes "pear-shaped," subsequently ovoid.

In Position.—At first the uterus sinks, the os is lower than

normal; and fundus is tilted back; this occurs most with multiparæ of lax fibre. During the first three months the womb is in the pelvis, the fundus at the fourth month is felt just above the symphysis; at the fifth month it is midway between the pubes and umbilicus; at the end of the sixth month at the umbilicus, which begins to protrude; at the seventh midway between the umbilicus and xiphoid cartilage; at the eighth it is at the ensiform cartilage and fills the abdomen, the intestines being above and behind; during the ninth month it does not ascend, and in the latter part actually descends.

In the Os and Cervix.—Soon after impregnation, the lips of the os begin to soften, and this change gradually progresses upwards; it is, however, less marked and slower in primiparæ. The volume of the cervix increases, but it does not elongate; the cervix does not shorten till near term; and the os uteri internum does not open till the eighth month.

The shape of the cervix at the commencement in primiparæ is contracted and more pointed; the os from a linear slit becomes circular. A little later, the middle of the cavity of the cervix enlarges, giving a fusiform shape; the os is rounded and smooth. In multiparæ, the cavity resembles a funnel, the base below. The os uteri externum remains closed in primiparæ up to term; in multiparæ it is widely open. The whole cervix disappears in the last fortnight, and until then preserves its length.

The canal of the cervix is filled with a Plug of tenacious mucus, the product of the glandulæ Nabothii, which are often felt like shot.

In direction.—At first the increase in size and weight tilts the fundus backwards; as it rises, it follows the axis of the superior strait till it reaches the promontory of the sacrum, then turns towards the right hypochondrium, this is perhaps caused by the superior strength of the right round ligament. The os at term lies backwards, and inclining to the left.

Signs and Symptoms of Pregnancy.—It may perhaps be said, without exaggeration, that there is hardly a branch of obstetric medicine which at times presents greater difficulties or is attended with more important consequences than

the *Diagnosis of Pregnancy*. Its non-recognition may not only lead to results disastrous alike to mother and child, but the practitioner may by his neglect become the unconscious instrument of a crime from which his moral nature shrinks with horror. On the other hand, in the case of the unmarried, he may, if mistaken in his diagnosis, cast a slur upon a spotless character, and by his dictum destroy a reputation on which the maintenance of life depends.

Little need be said, then, to prove how necessary it is to have a correct appreciation of the various *Signs of Pregnancy;* and hence the eagerness with which men have from time to time endeavored to discover some new and more unfailing sign of this condition. It must be admitted, however, that of late years no great advance has been made in this direction; and though many suggestions, of doubtful value in themselves, have been offered, we still in the main have to trust to a few signs, the value of which has been confirmed by years of experience.

There have been many ways of considering this subject by variously arranging the symptoms under certain classes; but without stopping to discuss their advantages or otherwise, it seems to me that the most natural and convenient method will be to state briefly *what phenomena may be looked for with each succeeding month*, instead of considering each seperate symptom as it occurs and is modified during the whole course of pregnancy. This arrangement will, I think, be of no small convenience to the student, and, at the time, it will be easy of reference for the practitioner.

As may be readily imagined, it is in the *early weeks* of pregnancy that the greatest difficulty of forming a correct opinion presents itself. In some cases there is absolutely nothing to excite suspicion of such a condition, and the patient may only become aware of it when pregnancy has far advanced. This is especially apt to occur during lactation, and I have more than once known abortion happen under these circumstances, caused probably by the sympathetic relations between the breast and the uterus. In other instances no sooner has conception taken place than, sometimes even within a few hours, symptoms begin

which at once attract attention, and force upon the patient's mind a conviction of her situation. Between these two extremes there is every shade of variety, from the smallest, almost inappreciable change, to a general disturbance of nearly every function.

As a general rule, among the *common indications of pregnancy* there are observable certain sympathetic derangements of the nervous system, such as increased irritability or unusual mildness of temper, fretfulness, despondency, headache, toothache, and various other neuralgic affections, with alterations in the tastes and dispositions; often a remarkable loathing of food, with nausea, or an unnatural craving after substances sometimes of a disgusting nature, The digestive system, too, becomes deranged; occasionally there is profuse salivation, or pyrosis, acid eructations, heartburn, vomiting, dyspepsia, diarrhœa or constipation; the latter caused sometimes by pressure of the uterus on the rectum. Changes are also common in the circulatory system; there is a sense of general plethora, with increased frequency and fulness of the pulse, and, it is said, a much greater proportion of fibrin present in the blood, with flushing of the face and an increase of the temperature of the body. Sometimes the skin undergoes notable changes; the complexion becomes sallow, florid, or blotchy; cutaneous eruptions, especially of the scaly or papular kind, will occasionally appear, and though defying every kind of treatment during gestation, will disappear immediately after delivery. Sometimes hair in great abundance will grow upon the face and chest, and while some persons get fatter, others lose flesh, and their features assume a peculiar shrunken and sharpened appearance. In persons suffering from phthisis, as well as some other serious organic diseases, the mischief is often arrested during pregnancy.

First month.—One of the earliest and perhaps most constant signs of pregnancy, that which often occasions the first suspicion in the patient's mind, is the cessation of menstruation. So far, however, from its being a proof of pregnancy, it is well known—1st, that it will occasionally stop as a consequence of disease, and especially in cases of ovarian disease; 2d, that

pregnancy may exist and menstruation continue, and 3d, pregnancy may occur, as during lactation, when menstruation is not being performed, and therefore not arrested by it.

There are a few curious cases on record where menstruation has only occured during pregnancy and at no other time; Baudelocque mentions several such; and there are others where it has appeared then for the first time. Much discussion has taken place regarding the scource of the fluid under these circumstances; some authorities believe that it is secreted from the vessels of the upper part of the vagina; others think that it comes from the cervix uteri; while others, again, think that in the first month or two, at least, it may come from the uterine cavity itself prior to the union of the decidua reflexa, with the decidua vera. It should be remembered that when it is desired to conceal the fact of pregnancy the patient will sometimes affirm that she is quite "regular," and will even stain her linen to carry out her deception.

In addition to this sign, some of those sympathetic derangements already mentioned will generally appear; the most constant, perhaps, being morning sickness. Nausea alone would not be a sign of much value, but there are peculiarities about that incidental to pregnancy which stamp it with much greater force. Though mostly occuring in the early morning as soon as the patient gets out of bed, or into the upright position, it may occur at any time of the day, and seems especially induced by the sight of food. It is not like an ordinary sickness, but is accompanied by a peculiar dead sinking feeling at the pit of the stomach, not unlike that caused by the motion of a vessel at sea, or that never-to-be-forgotten nausea which most who have learned to smoke have experienced. It may occur within a few hours of conception, and may last only a few weeks, or it may continue throughout the whole of pregnancy. Sometimes it lasts only for a few minutes during each day, but I have seen cases where the patient had hardly any freedom from it during the whole twenty-four hours, except while asleep. Sometimes they will even be awoke by it in the night.

Another symptom which is often extremely troublesome and distressing is profuse salivation. If we examine the mouth,

no indications will be found of inflammation either of the mouth or gums, nor is there any fœtor of the breath, or any metallic taste, such as characterizes mercurial salivation.

Certain changes in the uterus and vagina also occur; the os and cervix become soft and spongy, "cushiony," the transverse lip-like fissure being changed for a more circular form; the whole vagina is much hotter, and there is also a freer secretion of mucus.

In the *Second month*, besides the continuance of the above, about the end of this period the breasts begin to feel more or less tender and painful, there is a sense of fulness and throbbing in them, and they are observed to be somewhat larger, firmer, and with a peculiar knotty feel; the veins will be seen slightly enlarged, coursing over the breast, and the areolæ round the nipple are of a somewhat darker tint than usual. The degree to which this occurs is determined very much by the number of previous pregnancies, being much more strongly marked in multiparæ than primiparæ; but it is still more marked by the complexion of the patient, dark persons showing it far more than fair. The nipple also becomes puffy, swollen and tender, and around it are seen just rising the glandular follicles of a pale rose or flesh color. Milk will also be found secreted, and will generally appear at the nipple on gentle pressure.

On examining the os the changes before mentioned will be intensified. In primiparæ the os is quite circular and closed. The cervix very soft, somewhat enlarged, thicker, of irregular outline, and more readily reached by the finger. The abdomen becomes somewhat flat, possibly from the sinking of the uterus in the pelvis.

Third month.—Generally slight enlargement of the abdomen takes place at the end of the third month, not so much from the presence of the uterus in the abdominal cavity, which as yet cannot be felt out of the pelvis, except rarely in very thin persons, but from the intestines being displaced from that region: hence the enlargement will be regulated according as they are empty or full, or distended with flatus. The changes in the breast have now become much more decided; the areolæ are

larger and darker; the cuticle within them soft, moist, somewhat turgid; the glandular follicles, from twelve to twenty in number, are more prominent; the nipple larger and more tender, the veins distended on the surface, with a general mottled appearance; the whole organ evincing great activity, with occasionally slight secretion of milk. The os will now be less easily reached than in the preceding month, and its position has somewhat changed, owing to the fundus having risen so far as to allow the intestines to fall down in the cul-de-sac behind it. The os is consequently inclined towards the hollow of the sacrum, the fundus being thrown forwards on to the bladder and symphysis pubis.

Occasionally, in thin people, on applying the stethoscope or the ear to the abdomen just above the pubis, and pressing pretty firmly down in the direction of the pelvic brim, we may succeed in reaching the fundus uteri and detecting a slight blowing sound caused by the blood rushing through the uterine sinuses; this is the utero-placental sound of Hohl, the *bruit placentaire* of Kergaradec, or the uterine sound of Naegele. Care is required, however, not to attribute too much importance to this sign, for the same sound may be heard either *directly* from the aorta, or vena cava, or *indirectly* by being transmitted through any solid body pressing upon those vessels, as in the case of a uterine or ovarian tumor.

In the *Fourth month*, all the symptoms above mentioned remain, namely, suppression of the menses, changes in the breasts, certain sympathetic derangements, which generally now begin to subside, and enlargement of the abdomen, which becomes more strongly marked. It will now be found that the uterus has risen two inches above the pubis, and may be felt there as a hard, solid, round mass as large as a cricket ball; per vaginum, we learn that the uterus is enlarged, and that the anterior wall is becoming rounded. The mother now feels for the first time a slight movement within, which is described sometimes as a sort of feeble fluttering, and is sometimes attended by other peculiar sensations of a sympathetic character; to this sensation the term "quickening" is given. The uterine souffle is now tolerably distinct, though sometimes it requires great tact and

acumen to detect. Another auscultatory sign can sometimes be detected at this period, namely, the pulsations of the foetal heart, which produce a sort of tic-tac sound with a frequency of about 130 or 150 per minute; it is not synchronous with the maternal pulse, and differs in every respect from the sound previously described; it is most frequently heard a little to the right or left of the median line, about midway between the fundus and symphysis pubis; but it is also heard at the fundus, sometimes in the lumbar region, and sometimes close to the umbilicus; in short, the point of greatest audibleness varies probably with the position of the child, and it seems likely that the sound is communicated most readily either over the back or heart of the child. When once clearly made out, which is not usual so early as this month, there is no longer any room for doubting the existence of pregnancy; it is proof *positive*.

It should be born in mind, however, that there may be a living foetus in the utero, even though we fail to discover the pulsations of its heart; for the sound may be obscured by an excess of liquor amnii, or the child may be very feeble, and its heart-sounds weak, or the position of the child in utero may be such as to hinder the transmission of the sounds to the external wall.

Besides this, the sound caused by the movements of the foetus may sometimes at this period be heard through the stethoscope; and lastly, M. Jacquemier has noticed a peculiar dusky color of the vagina as common during the fourth month.

Fifth month.—To all of the above, each of which has now become more intensified and clear, another new sign shows itself at this period; it is but feeble at present, but still is generally distinct. If the patient be placed in an upright position, the finger introduced into the vagina and pushed suddenly against the uterus, striking it between the os and symphysis pubis, we shall receive the impression of something having bounded away from the finger; and by keeping the finger still upon the same spot, we shall in a few seconds perceive something falling upon it again—in fact, we had thrust away the foetus from its resting-place, and by its own gravity it fell again upon the spot

touched. This is a sign which, when clearly made out, is quite infallible; there is no other condition which could by any possibility give rise to it. All the auscultatory signs are now pretty evident. Movements are also plainly felt by the mother, and occasionally by the hand of the practitioner placed over the abdomen. The abdominal enlargement is quite visible, the fundus having risen to about midway between the pubis and umbilicus. The cervix begins to shorten, or rather, according to more recent observations, which, however, are not original, but only a confirmation of opinions expressed long since by Stoltz and Cazeaux, the cervix by pressure from above *appears* to be shortened, but is really only increased in its lateral diameter without any appreciable diminution of the length from above downwards.

Sixth month.—The fundus by this time has reached the level of the umbilicus, the abdomen protruding in an equal degree; the uterine souffle may be plainly heard, especially at a spot on either side and a little above the groin. The sounds of the fœtal heart may also be detected without much difficulty, *ballottement* and the fœtal movements are quite distinct, and the condition of the breast is unmistakable. The other minor signs now diminish in value from the stronger evidence afforded by those just mentioned.

Seventh month.—The maternal umbilical depression has almost disappeared, from the pressure of the uterus, and consequent distension of the abdominal wall; the fundus is situated about two inches above this spot. The vaginal portion of the cervix *appears* about half its length. The os is close against the hollow of the sacrum, ballottement is very distinct, and all the other symptoms remain in equal or even greater force.

Eight month.—There can now be little or no difficulty in determining the fact of pregnancy. The abdomen is very much distended, more or less pyriform in shape, the umbilical depression has disappeared. The fundus uteri reaches midway between the umbilicus and the scrobiculus cordis. The head of the child can generally be felt per vaginam; the cervix is almost entirely withdrawn into the abdomen. The os is reached with difficulty, the vagina is very moist, and has a dark congested appearance,

the breasts are large and hard, the areolæ dark, the follicles prominent, and milk is sometimes abundant; the uterine souffle can be heard in almost every part of the abdomen; the fœtal pulsations are much louder than before, and the movements of the child can easily be felt by the hand on the abdomen, sometimes even by the mother to a painful degree; ballottement is very distinct.

Ninth month.—The cervix uteri has now entirely disappeared, and the fundus has reached the level of the scrobiculus cordis; the movements of the fœtus will be plainly felt by the hand placed on the abdomen, and the auscultation signs can readily be heard; the other symptoms remain much the same.

Tenth month.—In this, the last month of gestation, an enumeration of the signs of pregnancy would include most or all of the following—absence of menstruation; enlargement of the breasts, and other mammary changes detailed above; abdominal swelling, and the presence of a firm, ovoid mass filling its cavity. Palpation plainly discovers fœtal movements within the swelling, and auscultation reveals two, three and occasionally four distinct sounds—the uterine souffle, the fœtal heart, the funic sound, heard only when the cord is wound round the body of the child, and sounds produced by movements of the fœtus. The os is directed towards the upper part of the sacrum, and exists as a small circular depression, the cervix has disappeared as a canal, but is spread out over the presenting part of the child. The globular head of the child may be felt filling the upper part of the vagina, but ballottement cannot be practiced in consequence of the child filling the uterine cavity, and there being little liquor amnii; the vagina is deeply congested, and of a dark livid hue.

This sketch of the signs of pregnancy would not be complete, however, without allusion to one other, which, though of very doubtful value, has nevertheless attracted the attention of practitioners; I mean a peculiar condition of the urine due to the presence of *kiesteine*. M. Nauche says: "By allowing the urine to stand for some time, in thirty or forty hours a deposit takes place of white, flaky, pulverulent, grumous matter, being

the casein or peculiar principle of the milk found in the breasts during gestation." The deposit forms sometimes as a delicate cloud in the centre of the urine, which then rises as a pellicle to the surface, and under the microscope numerous infusorial germs are seen; it may occur very early in pregnancy, even so soon as the second or third week. Recent observation, however, shows that this sign cannot be relied upon; for it has been proved that kiesteine is not peculiar to pregnancy, but may occur whenever the lacteal elements are secreted without a free discharge from the breasts. Of the nature and character of this substance, was in part composed of casein derived from the mammary gland; but this does not appear to be the case. The so-called kiesteine is not of constant or determined composition, but consists of urea, bladder mucus, fat, infusorial, and fungous growths, mixed with the organic matter of the vaginal discharges. Very similar appearances are found less frequently in the urine of anæmic non-pregnant women, and sometimes in the urine of men."

In estimating the relative value of these several signs, there are four which may be considered as of prime importance: and undoubtedly the first place must be given to the detection of the pulsations of the fœtal heart, and the fœtal movements; if these are once clearly made out, the diagnosis becomes certain: the other two are, first, the perception by the finger, *per vaginam*, of the fœtal head, *ballottement;* and, secondly, the movements of the fœtus through the abdominal wall. Next in value to these are the mammary changes: then come the changes in the os and cervix; then the uterine souffle, the vaginal discoloration, etc.

In the early months of gestation, diagnosis, even at the best, is at all times difficult. It may be rendered doubly so by the presence of disease in some of the abdominal or pelvic viscera; or by simulation through over-anxiety on the part of the patient to be in such a condition; or, on the contrary, by misrepresentation, from a desire, through shame, to hide the existing state of things. Of each of these three conditions there are numerous cases on record. Before quitting the subject of the diagnosis of pregnancy, a few words may be said on the *signs of*

plural gestation, uncertain and consequently unsatisfactory as these signs usually are. Those upon which the greatest reliance is placed, are the disproportionate size of the abdomen compared with the period of gestation; this may also be accounted for by an excess of liquor amnii, by an unusually large child, or by the coexistence of some morbid condition such as ascites, ovarian dropsy, or other abdominal tumor. The flattened state of the abdomen in front, with the appearance of being divided into halves, is also given as a sign of twins: the inequality of the abdominal surface, the tumultuous movements of the fœtus, the inordinate weight and distension, and the excessive œdema of the lower extremities—any or all of these are spoken of as more or less valuable indications of plural gestation; but many of them are extremely fanciful, and are probably much more the result of imagination than of actual observation. The only really certain, or at all reliable, sign is derived from auscultation; and if, after a very careful examination, we can detect two distinct fœtal pulsations at different points of the uterine surface, with perhaps a different rhythm or non-synchronous action, we may be quite certain of the case without any help from the above.

The signs of pregnancy have been classified by various authors as sensible, rational, presumptive, probable, certain, etc. The most rational classification that I can imagine is into *presumptive and certain. Ballottement, fœtal motion and the pulsation of the fœtal heart*, are the certain signs of pregnancy, all others are based on presumption.

Duration of Pregnancy.—The time from which pregnancy is usually calculated is the last menstrual period. The duration of pregnancy is usually two hundred and eighty days, comprising forty weeks or nine calendar months, this time, however, may be prolonged or retarded fifteen or twenty days. In the large majority of cases occurring in married women, in whom intercourse occurs frequently, there is no means of knowing the precise period at which conception took place. The only datum which exists for the calculation of the probable date of delivery is the cessation of menstruation. It is quite possible, however, and indeed probable, that conception occurred,

in a considerable number of instances, not immediately after the last menstruation, but immediately before the proper epoch for the occurence of the next. As the interval between the end of one menstruation and the commencement of the next averages twenty-five days, an error to that extent is always possible. Another source of fallacy is the fact, which has generally been overlooked, that even a single coitus does not fix the date of conception, but only that of insemination. It is well known that in many of the lower animals the fertilization of the ovule does not take place until several days after copulation, the spermatozoa remaining in the interval in a state of active vitality within the genital tract. It has been shown by Marion Sims that living spermatozoa exist in the cervical canal in the human female some days after intercourse. It is very probable, therefore, that in the human female, as in the lower animals, a considerable but unknown interval occurs between insemination and actual impregnation, which may render calculations as to the precise duration of pregnancy altogether unreliable.

Plural Pregnancy.—The term Plural Pregnancy may be held to include all cases in which two or more germs are fertilized, simultaneously or nearly so, and are together developed within the uterine cavity. The products of conception in these cases are termed twins, triplets, quadruplets, etc., according to their number. It has been observed that certain women are peculiarly prone to plural conceptions; that those, for example, who have once borne twins are much more likely to carry two children again than those who have not. Whether such pregnancies are or are not the result of separate acts of semination, is a question in regard to which we cannot venture beyond conjecture. Many facts, such as the birth of twins of different color, have been observed, which seem to show that successive acts within a limited period may be the cause of the impregnation of separate ova. But it is in the highest degree improbable that this is always the case, for there is no reason to believe that, if the semen comes into contact at the same time with two mature ova, one only is to be fecundated, and the other passed over. Indeed, in cases of double yolk, where twin pregnancy occasionally arises, it is apparent that what may suffice to fecun-

date one germ, can scarcely fail similarly to act upon the other. We shall not pause here to consider whether or not we are to explain the fact of the frequent unequal development in multiple pregnancies by the doctrine of superfecundation, but nothing is so common in this class of cases as to find one child well developed and vigorous, while another is weak and puny.

It was for a long time doubtful whether two embryos which were being simultaneously developed belonged to the same or different ova, and whether, in the last case, these ova proceeded from the same ovary. Modern research has in reference to these points established the following propositions: 1st, that two yolks are occasionally found in a single ovum; and that the germs contained in them are probably simultaneously fertilized: 2d, that two ova may exist within a single Graafian vesicle, from which, on its maturity, they may escape and be fertilized, together or successively: 3d, that two ova may be formed within two Graafian vesicles in the same ovary, or one in each ovary, the latter of which is proved by the simultaneous occurrence of pregnancy in each cavity of a double uterus, and by the existence of two corpora lutea, in the same stage of development.

The cases which occur most frequently are those in which two distinct ova are impregnated, whether they come from separate ovaries, from two Graafian vesicles in one ovary, or from a single Graafian vesicle. Each of these becomes imbedded in the mucous membrane of the uterus, and the decidua reflexa rises round it in the usual way. In the process of growth, the two tumors approach each other and come into contact, forming thus a partition between the two cavities, which originally consists of six layers, the decidua, chorion, and amnion, proper to each embryo. It would seem, however, according to the observations of Guillemot and others, that the decidua forms a very thin layer in the partition, or is absorbed, so that the partition at maturity consists of four layers only, consisting of the amnion and the chorion on each side, the whole mass being enveloped in a single decidua. In these cases the placentæ, developed, as will be remembered, on the maternal and fœtal sides, from the decidua and chorion respectively, are sometimes completely sep-

arated, the one from the other. In other instances, again, they are fused together into a single mass, or are united by a sort of membranous bridge. But, as a rule, in spite of this continuity of tissue, there exists no vascular communication between the two.

In another class of cases, which are of comparatively rare occurrence, there is a chorion common to both embryos, each, however, being enclosed in its own amnion, the common decidua surrounding the whole, as in the former case. In these instances there is a single placenta, and very frequent ramifications exist between the branches of the two cords. There can be no doubt that here there must have been impregnation of two germs within a single ovum; or, in other words, they are cases of double yolk.

It occasionally occurs that two embryos exist in a common amnionic cavity,—a fact which it is difficult to explain on any other hypothesis than that they originally belonged to the former class, and that the amnionic partition is absorbed in the course of development, or that of the impregnation of a double ovum, *i. e.*, one containing two germinal vesicles.

It has been observed, with reference to multiple pregnancies, that they frequently terminate before the full period of gestation has been reached. This we may assume to be due to the over-distension of the uterus, which exites it to contraction at a period somewhat earlier than usual. As a rule, both children are generally expelled in the course of the same labor, in some instances without even a pause in the uterine effort. This is, however, far from being invariable, as it is not uncommon for the action to cease, and to return again in eighteen, twenty-four or even forty-eight hours, when the uterus is thrown anew into periodic contractions, and the labor goes on in a perfectly regular and normal manner.

It is unnecessary to make further mention of the other varieties of multiple pregnancy, as the observations which have been made may be held as applicable to these also. To judge from the few cases in which observations have been made, it would appear to be rare that each fœtus, the

number being more than two, is inclosed in its own complete sac. Several cases of triplets, are, for example, recorded, in which one had a special sac, while the other two had a common amnion. In regard to the possible retention of one or more of them, we may well suppose, to judge from analogy, that any conceivable combination of the numbers is in this respect possible.

CHAPTER II.

ABNORMAL PREGNANCY.

SUPERFŒTATION may be defined as a second impregnation, one having already taken place and the second being still occupied by the embryo. It may result in a bilobed uterus, *i. e.*, a uterus having a wall or septum dividing its interior into two separate cavities in which case a second impregnation may take place, on copulation, any time during utero gestation. Again it may take place in a uterus of a single cavity at any time before the second month or even later owing to the fact that the decidua reflexa is not developed enough before that time to fill up the entire cavity, and consequently there is a possibility of the spermatozoa finding an entrance into the cavity where, should there happen to be an ovum it would become impregnated.

To prove that superfoetation is possible, there are a number of cases on record in which children have been born from the same mother two, three and even four months apart; other cases might be cited in which one child was black and the other white, thus proving beyond a doubt that the double conception was the result of intercourse with two persons.

EXTRA-UTERINE PREGNANCY is the result of the development of the ovum in some other cavity than the uterus; there may be four varieties: *ovarian*, when the ovary is the site of development; *tubal*, when the ovum is developed in the Fallopian tube; *interstitial*, when it is developed in that portion of the tube that is within the wall of the uterus; and abdominal when in any part of the abdomen.

Symptoms.—The symptoms are in many cases identical with normal pregnancy, othertimes there is no cessation of the menses and the symptoms are analogous to ovarian or uterine tumors, *i. e.*, tumor found on examination to be located on one side of

the abdomen, painful, weight and uneasiness in the region of the kidneys or pelvis; on examination the uterus may usually be found unchanged in size and position. There is no development in extra-uterine pregnancy of the deciduous membranes; the foetal envelope, the chorion and amnion are, however, developed in the usual manner, the villosities of the chorion attaching themselves to the adjacent structures, thus affording, by imbibition, nourishment to the embryo.

Termination.—The termination of extra-uterine pregnancy is in the majority of cases rupture of the cyst at, or before, the fourth month; there are cases, however, especially in the abdominal variety, that go on to term, at which time a kind of pseudo labor takes place, after which death of the foetus results and the remains are constituted into a permanent tumor that is gradually absorbed until all the liquor amnii and parts of the soft tissues are gone, leaving a variety of tumor known as the *dermoid cyst*, or the debris may be discharged through fistulous openings into the bowels or through the parieties of the abdomen.

Rupture of the Cyst.—The symptoms accompanying rupture are those of intense collapse, often associated with severe abdominal pain, produced by the laceration of the cyst. The patient will be found deadly pale, with a small, thready and almost imperceptible pulse, perhaps vomiting, but with the mental faculties clear. If the hemorrhage be considerable, she may die without any attempt at reaction. Sometimes, however, the hemorrhage may cease. The patient may then imperfectly rally, to be again prostrated by a second escape of blood, which proves fatal. If the loss of blood is not of itself sufficient to cause death from shock and anæmia, the fatal issue is generally only postponed, for the effused blood soon sets up a violent general peritonitis, which rapidly carries off the patient.

Treatment.—In regard to the Treatment of extra-uterine pregnancy, much must in every case depend on the stage of development and the other circumstances of the case. In so far as the early weeks are concerned, it is obvious that, accurate diagnosis being impossible, treatment can only be palliative, or

directed against symptoms, the import of which we can only guess at. At a stage somewhat more advanced, precision in diagnosis is scarcely more easy; although, could we only be certain of this, we cannot doubt that the recourses of modern surgery might avail. If the sac were lodged in the pelvis, interference would very probably take place with the functions of the bladder and rectum, requiring perhaps, frequent mechanical aid for the relief of the bladder. The attacks of pain, which are of such frequent occurrence in all the forms, will be most certainly and satisfactorily removed by anodyne applications, such as flax seed or hop-poultices, and by opiate suppositories or enemata, strict rest in the recumbent posture being at the same time enjoined, with careful attention to the digestive and other functions. It has been suggested by Cazeaux that, even at this early period, attempts should be made, by electric shocks passed through the abdomen, to destroy the life of the foetus. Were this practicable, it would be sound treatment, in view of the probabilities of the case, to cut short the existence of the foetus; but we apprehend that the result looked for cannot, with any confidence, be counted upon. It has also been recommended to perforate the sac by trocar from the vagina, should this be practicable, a step to which Scanzoni lends his powerful advocacy; and we see no reason to doubt the propriety, in many cases, (if only diagnostic difficulties were overcome) of exhausting the liquor amnii by means of the aspirator.

When the period of expulsive effort arrives, it comes to be a question whether in any case we may interfere with a view to the relief of the patient by immediate delivery. The cases, doubtless, in which operative interference may be resorted to, with the greatest prospect of success, are those in which the foetus is felt through the vagina, and the nature of the case is distinctly made out; and, an additional argument in favor of operation will doubtless be afforded by proof of the life of the child. The operation, if resolved upon, consists in an incision through the vaginal walls, and the removal, by forceps or otherwise, of the fœtus. By having recourse to this procedure, the lives of infants have been, in a considerable number of instances, preserved; but as a general rule, the mother has succumbed.

If the pregnancy has reached the eighth month, and the life of the fœtus is indicated by the usual signs, and, if the sac can be reached only through the abdominal walls, it is of course, possible to anticipate rupture, and to extract, by gastrotomy and incision of the sac, a living fœtus. To this operation the name of Laparotomy has been given, and to its performance few obstacles or difficulties would seem to arise. But if we balance the hope of the child's life against what is almost the certainty of the mother's death,—which even under the most favorable conditions, must be the state of the case,—there are, perhaps, few contingencies in surgical or obstetrical practice in regard to which the sense of responsibility will be more keenly felt. It is so far satisfactory to know, that recent experience has dispelled what was at one time believed to be the chief difficulty on the maternal side, viz., the removal of the placenta., and, indeed, it is now universally admitted that, if we perform the operation at all, we only augment the danger to the mother by any attempt to detach the placenta from the site to which it is adherent. There are cases in which this operation may be the only chance of the mother's life, and we are certainly entitled to hope that the great success which has of late years followed the operation of ovariotomy may point to the possible saving of lives which have hitherto been yielded up as hopeless. And, perhaps, a day may come when diagnostic skill being more certain, an early extra-uterine pregnancy may be removed and ligatured with as great a prospect of success as an ovarian cyst. In cases where a living mature child has escaped by rupture of the sac into the abdominal cavity, we need have no difficulty, for here the analogy is complete between the case in question and one in which a living child has similarly escaped through a uterine rupture; and, by the operation in these circumstances, the risk to the mother will be little aggravated, while the life of the child may probably be saved.

In the case of a woman who has carried for one or more years, an extra-uterine fœtus, which causes her great suffering, or which is obviously undermining her general health, the question of operation may also suggest itself, although in a different

form. The rule which must here guide us is, in addition to the state of her health, the possibility of reaching the tumor from the vagina; for, unless we were convinced of the existence of adhesions to the anterior or lateral abdominal walls, an operation in this direction would, we conceive, seldom be warranted.

The duty of the surgeon will, however, in most cases, be confined to carefully watching and cautiously assisting in the separation of the fœtal debris. Should one or more fistulous openings exist in the abdominal walls, the vagina, the perineum, or the rectum, the nature and extent of the cavity of the sac may be carefully explored through them. By the aid of sponge-tents, the apertures may be safely distended, and any loose portion removed; care being always taken not to drag rudely such fragments as may be adherent to the walls of the sac, as, by doing so, the sac might be ruptured, and peritonitis ensue. These openings are more rapidly and more safely enlarged with the knife. This operation is one of little more gravity than opening a large abcess. If the communication has taken place in the direction of the bladder, it may be necessary to remove them by one of the operations for lithotomy; or, by dilatation of the urethra. While the separation of the fœtus is thus promoted, in any way which experience may suggest to us as consistent with safety, the general health of the woman must be carefully attended to, her strength being sustained by nourishing food and suitable stimulants, while any tendency to hectic or irritative fever must receive its appropriate treatment.

The homoeopathic remedies are as follows:

Apis, sudden stitches, like bee-stings, in the tumor, or sharp, cutting pains, with scanty urine and constipation; bearing down, and pain in the small of the back, as if the menses would come on; numbness of the corresponding lower extremity; thirstlessness; pale skin; œdema; right side.

Arsen., burning pain; restlessness; anxiety; oppression; sinking of strength; great thirst, but little drinking at a time; dropsical swelling all over.

Calc. c., distention and hardness of the abdomen; pressure

in the rectum, and bearing down in the womb; profuse and too early menses.

Canth., burning pain; great sensitiveness of the abdominal walls; constant, painful urging to urinate and defecate; tenesmus in the bladder and rectum; wretched, sickly appearance.

China, after great loss of fluids; general anasarca; meteorism.

Iodium, pressing, bearing down towards the genitals; constipation; acrid leucorrhoea, corroding the linen; dwindling and falling away of the mammæ; strumous constitution.

Lycop., painful, boring stitches in the left ovarian region; pressure on the rectum and bladder; pain in the sacral region, especially when rising from a seat; red, sandy sediment in the urine; ascites; varicose veins on the legs.

Where proper Hoœmopathic treatment should show no influence in staying the growth of such tumors, or improving the general health of the patient, such cases belong then to the field of operative surgery.

Mole Pregnancy.—It happens sometimes that the development of the embryo is arrested during the earlier months of pregnancy, and as a consequence, although embryonic vitality is interrupted, the several membranes more especially, the chorion assumes a remarkably rapid growth developing into a fleshy mass that is designated as the *mole carnosa*. This fleshy mass is materialy assisted in the growth by the rupture of blood vessels of the embryo, the blood being discharged into the mass and coagulating, afterwards assuming a fibrous consistancy. This variety of mole is usually expelled at from three to five months from the date of conception; cases are, however, on record in which they have been retained even longer than the ninth month. They are usually expelled with all the symptoms of abortion only, as a usual thing there is less Hemorrhage. They recurr frequently in the same person as a result of uterine disease, such as ulceration, inflammation, &c. and are. it is said met with most frequently in women approaching the climactric.

Therapeutics.—*Calc. c.*, pressing on the uterus; aching of the vagina; stinging in the os uteri; the menses appear too soon,

and are too profuse; milk-like leucorrhœa; during expulsion of mole, cutting pain in the abdomen and back.

Ignatia, violent crampy pressing in the region of the uterus, resembling labor-pains, followed by a discharge of clots and shreds; the menses are scanty, black, and of a putrid odor; metrorrhagia; she seeks to be alone, is brooding to herself, and full of grief.

Kali c., pain in the small of the back, as though it were pressed in from both sides, with labor-like colic and leucorrhœa; also during the menses; the pains in the bowels are apt to recur about three o'clock every morning; bloated face in the morning, especially between the eyebrows and upper lids; great dryness and itchiness of the skin; great tendency to start when being slightly touched.

Merc., peculiar, weak feeling in the abdomen, as though she had to keep it up; close above the genital organs a sensation as if something heavy were pulling downward, accompanied by a pulling pain in both thighs, as if the muscles and tendons were too short.

Sepia, in cases that moles recur frequently; painful stiffness in the uterus; pressing from above downwards, oppressing the breathing; must cross her thighs, in order to get relief; pot-belliedness; yellow saddle across the bridge of the nose; feels worse while riding in a carriage.

Silic., diarrhœa or else great costiveness before the menses; increased menses, with repeated paroxysms of icy coldness over the whole body at the time of their appearance.

Hydatidiform moles.—This variety of moles results from the secretion in the vilii of the chorion, a serous fluid that distends them until they become small, transparent, grape-like clusters. Professor Comstock, of St. Louis, gives a case in an article on this subject, published in the North American Journal of Homœopathy, Vol. XIII, Page 69, as follows:

"Mrs. B., aged forty-five, consulted me Oct. 3rd, 1863, complaining of nausea, and a constant tendency to vomit, especially after eating; these symptoms she says have troubled her for some weeks past, and she believed herself in the family way.

I discouraged her from entertaining any such idea, as after a careful examination, I could detect no positive signs of pregnancy, and that she was probably passing the "turn of life." I prescribed for her some twenty days, when I ceased to attend her until Nov. 18th following—at this time she had all the subjective symptoms of pregnancy, but nothing like the sound of the fœtal heart could be heard, and besides she had occasional hæmorrhages, and I told her frankly, I could not entertain the idea of her pregnancy; her abdomen was enlarged, and her lower limbs swollen, and the nausea still continued. About Feb. 26, a serous diarrhœa set in, and this relieved her, as the anasarca soon disappeared somewhat. I demanded now an examination with the speculum, she declined to accede to my request, until Dec. fifth, when she asked me to call another physician in consultation, and appointed the next day, when she said we might make a digital examination; and also use the speculum. I also informed her she must have a uterine tumor, and that in my opinion she could not be pregnant.

Early in the morning of Dec. 10, she was attacked with flooding, and had bled for several hours, and was nearly pulseless, and apparently in a moribund condition when I reached her bed-side. I remained six hours by her, giving her restoratives, thinking she might die at any moment. Her bed was indeed one "pool of blood," and with it she had passed an enormous mass of hydatids, enough to more than fill a basin holding a pint and a half; and still the womb seemed to be distended with more of the same kind. The os-uteri was open, I introduced one hand, and removed almost as much as she had passed spontaneously; the bleeding still continued, and I applied pieces of ice within the uterine cavity, and sent immediately for my colpeurynter, which I introduced within the vagina, and filled it with ice water. It was nearly six hours before she showed any signs of rallying, being all the time cold, and with a pulse so weak, that an arterial circulation could hardly be felt, although I had given wine every few minutes, as she could swallow well.

In the mean time, the hæmorrhage continued slightly, not-

withstanding the constant application of the hæmostatic appliances. I now gave her Secale-cornutum in cinnamon-tea, in order to quiet the hæmorrhage as well as expel the contents of the womb. Patient passed every few minutes in the day small portions of the hydatids, and whenever I made a vaginal examination, I could by introducing my hand within the mouth of the womb, bring away sometimes small clusters of the hydatids, and again almost a handful. I should judge the whole quantity of the hydatid mass was in bulk quite equal to a seven-months child. At the expiration of twenty-four hours, the patient could speak only in a whisper. The Ergot, application of the colpeurynter, and occasionally small pieces of ice within the womb, were all continued, and notwithstanding all these, and her extreme anæmic condition, slight hæmorrhages would occur at intervals. On the third day, the patient's condition had not changed very much; she continued to speak in a whisper, and took a little wine and oyster-broth. I did not notice that she passed any more hydatids. Gave Tinct.-ferr.-chloridæ, every three hours, and still a little blood trickled from her, although the extremely pallid and anæmic look of the patient indicated that she had very little blood left. On the fifth night she was suddenly attacked with the most intense pains in the bowels, which were of a nature so agonizing as to induce me to give her a dose of McMunn's Elixir of Opium, which stilled them effectually; although they returned some three times afterwards in a slight degree. She afterwards complained of strangury, and once or twice it was necessary to evacuate the bladder by the use of the catheter, but she generally passed her water without much difficulty; its color was dark and very turbid. At the expiration of eight days, the discharge from the uterus became very offensive, and I feared "purulent infection." The os-uteri still remained open, and I corrected the fœtid odor by injecting tepid chamomile-tea, and applying to the mouth of the womb a cloth saturated with a weak solution of *liquor sodæ chlorinatæ*; this was occasionally changed whenever any hæmorrhage recurred, for a cloth saturated with a solution of Tinct.-ferr.-mur. and Aq. distill., each one ounce. It must not be forgotten that dur-

ing all of this period, the patient looked like a corpse, so that I had not the slightest hope for her from the first, after the loss of so much blood—that she lived so long was indeed remarkable. The bowels were quiet and did not move until the eleventh day, by the assistance of an injection of tepid water. They had become a little distended, and her friends imagined an evacuation would do her good,—fortunately only one large evacuation followed. The patient continued in much the same condition until Dec. 31, a little past 12 P. M., when she expired.

During the whole period of her sickness she complained of very little except extreme weakness, and the paroxysms of pain one day, which I have already mentioned; the slight difficulty in micturating continued, and rather increased the last few days of her life. She retained her senses perfectly almost until within a few hours of her dissolution, and would generally manifest by signs her wishes when she could not articulate in a whisper. What is remarkable about this case is that her symptoms from Oct. 3rd, the date of her first consulting me, were not unlike those of pregnancy, and she fully believed herself "*enciente,*" until a day or two before her attack of flooding."

The appearance of these hydatids may be compared to clusters of white grapes; they are not usually uniform, but are of all sizes and shapes, in form oval and round, but all adhering to one stock. In the present case they were, however, nearly uniform, and presented the appearance of thousands of grapes, or Zante currants, but they were nearly transparent. Their pathology has been accurately studied by Mesdames Boivin and Duges. According to Madame Boivin, hydatid births seldom occur before the sixth month of their gestation. In the present case the lady had menstruated a little in July previous, when she supposed herself well. She experienced nausea, however, in August, and supposed herself to be certainly, "in the family-way" in September last.

From the above, it would seem that this enormous mass of hydatids had formed in about five months. Authors generally suppose that hydatids are the result of conception; others deny this theory, and again they have supposed women to be most subject to them at or about the "change of life."

This is, however, by no means established. I have met with three other cases, all in married women under thirty, they were slight cases, that is, the quantity passed would bear no comparison to the case in question, and they were attended with no difficulty or untoward results.

They are said to be peculiarly liable to recur in the same person during a life term, and have been observed in several members of the same family. It has been denied by some authorities that hydatids and moles are necessarily the consequence of conception.

Percy believed hydatids were independent animals, and their production compatible with the purest chastity, and this opinion was supported by such men as Drs. Denman and Sir Charles Clark.

The most experienced physicians of the present day regard hydatids and moles as depending upon a previous impregnation, and this opinion, if correct, is of great importance in a medico-legal point of view.

We believe they are usually the consequence of conception, or in other words that they are degenerated ova, but that they never occur in virgins, is not yet statistically proved. The only danger from hydatids is hæmorrhage; and my only regret is that I could not have seen this patient (who was a most estimable lady and mother) before the flooding had gone so far, and she in a collapsed state; I believe her life could have been saved by prompt treatment, quite as necessary here as in placenta-prævia.

The requisites for treatment are small pieces of ice within the os-uteri, ice-water injections into the rectum, the colpeurynter, and Ergot internally.

If I only had in my possession at the time Whitecure's instrument for transfusion of blood, or the new instrument of Prof. Dr. Gross, as described in his Surgery, 2nd edition, Vol. II., page 493, for the same purpose, I should have tried it in this case; and I think in such cases transfusion might be successfully employed."

THERAPEUTICS:

The following remedies will be found useful in Hydatiform moles:

Apocyn. cann., the flow is either continuous or paroxysmal; the blood fluid or clotted; there is nausea, vomiting, palpitation of the heart, great prostration and fainting when raising the head from the pillow.

Calc. c., climacteric period; previously always inclined to profuse and protracted menses.

Ferrum, partly fluid and partly black, clotted blood; labor-like and colicky pains.

Hamamelis, passive hemorrhage, with anæmia.

Merc., frequent fainting; profuse cold perspiration on the face; collection of slime in mouth and throat; external swelling of the genitals.

Plumbum, during the climacteric period; dark clots, alternating with fluid, blood or bloody serum, with a sensation of fulness in the pelvis, and slight bearing-down pains from the small of the back to the front; great debility, short breath on going up-stairs; depressed spirits.

Rhus tox, bright red blood; drawing, tearing in the back, loins and hips; cramp-like contraction of the thighs.

Sepia, climacteric age; congestion of the head; fulness and pressure in the chest; spasmodic contractions in the abdomen, with terrible bearing down. Such patients are very irritable, and faint from any little exertion.

Sulphur, in chronic cases, when other remedies do not prevent its return; psoric taint of the system; eruptions here and there, or previously-suppressed eruptions.

False pregnancy is the result of a collection of water in the womb known as *Hydrometra*, or of gas when it is termed *Physiometra*, and finally there may be a formation of adipose tissue in the lower abdomen that in case of nervous hysterical women might give rise to certain symptoms of pregnancy. In the two former varieties, *i. e.*, Hydrometra and Physiometra, the symptoms may deceive not only the woman but even the physician,

unless he should have recourse to an examination, when in the one case he would find fluctuation of the fluid without the presence of any tumor and in the other tympanites would clear up the matter. These cases sometimes go on to what would in natural pregnancy be full term when a pseudo labor sets in and the contents of the womb either water or gas, as the case may be, is discharged to the chagrin of the patient, who usually has materially assisted in the deception through her over anxiety to become a mother.

THERAPEUTICS:

Arsenicum is a most useful remedy in Hydrometra. It is especially indicated when there is much general *debility*, rapid *emaciation*, and anxious *depression*.

Digitalis is indicated by a small, feeble, and irregular pulse, pale face, livid lips, distressing dyspnœa, and inability to lie on the back in consequence of the large accumulation of fluid.

Apis, the action of this remedy on the kidneys is sufficient to make it most useful in that variety which sometimes appears in the later months of pregnancy, laying the foundation of future puerperal Convulsions; sometimes, also, for a time, it removes the *œdema of the lower extremities*.

China.—Dropsical swellings from *exhausting discharges* and haemorrhages.

Senega.—Dropsy as a sequel of albuminuria, or symptomatic of disorder of the liver, Peritonitis, or abdominal tumours.

Ferrum.—*Functional œdema*, especially in anæmic or chlorotic females, with pale and cadaverous skin, feebleness, nausea after eating, *Constipation*, etc.

The remedies that may be indicated in Physiometra are: *Colocynth., Iris vers., Plumb., Cocculus, Lycopod.* and *Ignatia*.

CHAPTER III.

DISEASES OF PREGNANCY.

NAUSEA AND VOMITING.—This condition is always present and is one of the presumptive signs of pregnancy; it generally makes its appearance about the fourth or fifth week and continues eight or nine weeks, rarely lasting longer than the fourth and a half month, occurring again in some instances toward the latter part of gestation, about the ninth month. The term morning sickness is inappropriate, for the fact is, the trouble may occur in the evening, at night, at noon or any other time of day. Ordinarily the difficulty is only a source of annoyance and slight prostration, occasionally, however, it assumes a more serious form and numerous cases of death from exhaustion and malnutrition are recorded, that have resulted from this disorder; abortion may also be produced by the violent retching and vomiting.

Causes.—The cause of nausea and vomiting is reflex nervous irritation from the developing uterus; in the latter end of pregnancy it is to be attributed partly to mechanical pressure; retroversion and retroflexion of the womb may also act as exciting causes.

Symptoms.—The symptoms generally assume a periodic nature, there may be nausea with or without vomiting, the paroxysms last from one-half to two hours, and are often precipitated by suddenly assuming an erect posture or partaking of indigestible food; there is, great prostration, pain in the epigastrium, tongue coated white, the matter emitted is thin, watery, glairy and colorless or greenish, blackish and containing bile, blood or undigested food.

THERAPEUTICS:

Aethusa cyn., if milk cannot be born and is vomited as soon as taken.

Anacard., nausea worse before and after, better while eating.

Ant. crud., belching, with taste of what has been eaten; frightful and persistent vomiting, with convulsions; nausea and vomiting with milky-white coating of the tongue.

Arsen., the food tastes well, but when swallowed leaves a bitter sensation in the mouth; disgust for meats; likes fruits and vegetables; vomiting after every meal and after drinking; long lasting nausea, with faintness, tremor, heat all over and shuddering.

Bovista, morning sickness, vomits only water, always relieved by taking breakfast.

Bry., nausea and vomiting in morning when waking; nausea increased or brought on by slightest motion, must lie quiet; vomiting of food immediately after eating.

Coccul., nausea which is felt in the head; nausea and inclination to vomit, in the morning, can scarcely rise on account of faintness; nausea and vomiting when riding in a carriage.

Conium. mac., terrible nausea and vomiting during pregnancy; nausea as soon as food is taken.

Digit., nausea as if she would die, worse in the morning; smell of food excites violent nausea, with clean tongue, thirst for water and absence of fever; motion produces vomiting and great faintness.

Ferrum., vomiting after eating, and at no other time.

Ipecac., nausea and vomiting, with great uneasiness in the stomach; continual nausea all the time, not a moments relief; vomiting of large quantities of mucus.

Kreasote., vomiting before breakfast of sweetish water, breakfast and dinner retained; vomiting after supper.

Natr. mur., nausea in the morning; waterbrash-like limpid mucus, and much acidity of the stomach; feeling of great hunger, as if the stomach were empty, but no appetite.

Nitric ac., nausea with heat in the stomach, extending to the throat; nausea better from moving about or riding in a carriage.

Nux. vom., thinks she would feel better if she could vomit;

food and drink have a fetid smell to her; cannot bear the odor of tobacco; nausea and vomiting every morning with constipation of large difficult stools and great depression of spirits.

Phos., nausea with hunger early in the morning; very weak feeling in the abdomen; heat up the back; bitter or sour taste after drinking milk; as soon as the water becomes warm in the stomach it is thrown up.

Puls., bad taste in the mouth every morning on awaking; nothing tastes good to her; vomiting of mucus; pulsations in the pit of the stomach; absence of thirst; nightly diarrhœa; nausea with colic ceasing after vomiting.

Sepia, she cannot take her accustomed ride in the morning on account of nausea and painful feeling of hunger in the morning; nausea in the morning as if all the viscera were turning inside out; inclination to vomit in the morning when rinsing out her mouth; vomiting of milky water or milky mucus, with sensation of emptiness in the pit of the stomach; the thought of food sickens her with sensation of great weight in the anus; eructations tasting like spoiled eggs or manure, with aversion to meat.

Sil., nausea and vomiting, if her menses previously had always been accompanied with palpitation of the heart; water tastes badly, vomits after drinking; hungry, but cannot get down the food, it is so nauseous; taste of blood in the morning.

Staph., extreme hunger, even when the stomach is full of food; sensation as if the stomach were hanging down, relaxed; a feeling of weakness in the abdomen, as if it would drop, wants to hold it up.

Tabacc., nausea with faintness, and deadly paleness of the face, relieved by being in the open air; nausea as soon as she begins to move; when the patient loses flesh very fast or vomits water or acid liquids and mucus.

Lobel infl., nausea and vomiting with profuse running of water from the mouth; nausea worse at night and after sleeping, relieved by a little food or drink; after each vomiting spell she breaks out all over with sweat, followed by a sensation as if thousands of needles were piercing her skin from within outwards.

Accessory means.—The careful regulation of the diet will be one of the first indications. Great benefit is often derived from recommending the patient not to rise from the recumbent position in the morning until she has taken something. Half a cup of milk and lime-water, or a cup of strong coffee, or a little rum and milk, or cocoa and milk, or even a morsel of biscuit taken on waking, often has a remarkable effect in diminishing the tendency to nausea. When any attempt at swallowing solid food brings on vomiting, it is better to give up all pretence at keeping to regular meals, and to order such light and easily assimilated food, at short intervals, as can be retained. Iced milk with lime or soda-water, half and half, given frequently, and not more than a mouthful at a time, will frequently be retained when nothing else will. Cold beef jelly, a spoonful at a time, will also often be kept down. Ice may be given to suck, *ad libitum*, and is of itself very useful; while, if there is much exhaustion small quantities of iced champagne may also be given from time to time. It is well, however, to bear in mind, in regulating the diet, that the stomach is fanciful and capricious, and that the patient may be able to retain strange and apparently unlikely articles of food; and that, if she expresses a desire for such, the experiment of letting her have them should certainly be tried.

When there is a manifest congestion or inflamation of the cervix as is sometimes the case, a pledget of cotton-wool saturated with a glycerole composed of equal parts of glycerine, and Tr. Calendula, placed in the vagina around the os, will give relief; in case of malposition of the womb it should of course be regulated. Finally, when death is eminent, evacuation of the uterus by induced abortion may become permissable. There has been lately agitated in medical journals a method of arresting nausea and vomiting of pregnancy by a dilatation of the os and cervix uteri, it being claimed that there exists in many cases a kind of puckering which produces irritation; the manner of affecting the dilatation is by introducing the finger forcibly into the os and retaining it there for some minutes, repeating the measure every few days if necessary. I consider the procedure hazardous and not to be resorted to until all other means,

except abortion, have failed, when in preference to the latter it may be tried.*

HEARTBURN.—Pyrosis is a frequent and very annoying accompaniment of pregnancy, it may make its appearance early, but usually is not troublesome until the latter months; the causes are reflex nervous irritation of the stomach, mental emotion and certain articles of diet.

Symptoms.—Pain and heat in the epigastrium extending along the œsophagus; eructations of sour acid, bitter fluid, aggravated by eating; there may also be impairment of appetite.

THERAPEUTICS:

Nux Vomica, this remedy is generally efficient, and should be administered three or four times daily as long as improvement continues. It is especially indicated when there exist headache, spasm in the throat, constipation, and loss of appetite.

Pulsatilla, patients of a mild, timid disposition, with a tendency to diarrhœa; dislike of food, especially of fat; *eructations tasting of food;* perverted taste, or taste as of putrid meat; inclination to vomit.

Carbo Veg., acid, *acrid eructations, with flatulence*, rumbling in the abdomen, burning heat in the stomach, the hot air sometimes rising to the throat, causing a sensation of suffocation.

Sulphuric Acid.—Chronic Acidity. Our allopathic brethren have now found out that acidity is better treated by acids than by alkalies.

Calcarea Carb., obstinate acid eructations.

Sulphur, when the above only afford partial relief.

Diet.—In heartburn the diet should be light, consisting of such articles as rice, oysters, milk, stale bread, fresh butter, soda crackers, etc.; only one or two articles to be eaten of at a meal, and nothing between meals; there should be as little fluid drank as is sufficient to satisfy thirst.

CONSTIPATION is a very common accompaniment of pregnancy, being often present in those women who have never before suffered from it. It ordinarily produces no serious results; but sometimes if prolonged, headache, sleeplesness, weight, fulness, and pain in the abdomen accompanied by tenesmus, discharge

* Oxalate of cerium one gr. pill three times per day sometimes relieves vomiting and nausea when all other means fail. Salicine in the same dose may also be tried.

of scybalæ and bloody mucus are liable to ensue, and if not corrected may lead to abortion, dysentery, piles and other grave complications.

THERAPEUTICS:

Alumina, constipation from inactivity of the bowels; much effort must be employed for the expulsion even of a soft stool; so inactive is the rectum; stools very hard, knotty and scant.

Agaric Musc., stools first hard and knotty, afterwards loose, and finally diarrhœic.

Antim. Crud., sensation, as if a copious stool would take place, when only flatus is expelled; finally a very hard stool is voided.

Apis. Mel., stool seldom and very difficult, with stinging pains and sensation in the abdomen, as if something tight, which would break, if too much effort were used.

Bell., constipation, with tendency of blood to the head; flushed face; red eyes; throbbing of the carotids; heat in the head; intolerance of noise and of light.

Bryon, stools dark, dry and hard as if burned, and is evacuated with much difficulty; stools too large to be evacuated without pain.

Calc. carb., stools large, hard, and sometimes only partly digested; constipation from indurated stool, which is too white.

Caust., stools tough, light-colored, whitish, shining like grease; frequent unsuccessful desire to pass stool, accompanied with pain, anxiety and redness of the face.

Chelid., stools like sheep's dung; constant pain under the lower inner angle of the right shoulder blade.

Collinsonia, obstinate and habitual constipation; stools lumpy and light-colored, with dull pains in the anus.

Graphites, large, hard, knotty stool, the knots being united by mucous threads, and much mucus after the stool.

Ignat., difficult stool causing prolapsus ani constipation from taking cold or riding in a carriage; after stool a violent stabbing stitch from the anus upwards into the rectum.

Lycop., small stool, with the sensation as if much remained behind, followed by excessive and painful accumulation of flatu-

lence; ineffectual urging from a contraction of the sphincter ani.

Magn. mur., large difficult stools crumbling at the verge of the anus; stools hard and knotty like sheep's dung.

Natrum mur., constipation from inactivity of the rectum; stool hard, difficult or crumbling; anus contracted; anus torn, bleeding, smarting, burning afterwards; stitches in the rectum; passes blood with the stool.

Nitr. ac., desire for stool, but little passes, with ineffectual urging; feeling as if it stayed in the rectum and could not be expelled.

Nux vom., constipation with rush of blood to the head; obstructed portal circulation; frequent ineffectual urging; sensation as if the anus were closed, or too narrow.

Opium, stools in hard, round black balls, costive from inactive bowels; constipation of corpulent good humored women.

Phosph., constipation, fæces slender, long, dry; tough and hard like a dogs, voided with difficulty.

Plumb. met., constipation, stools hard, lumpy like sheep's dung; with urging and terrible pain from constriction or spasm of the anus.

Pulsat., obstinate constipation; nausea; bad tastes in the morning, must wash out the mouth.

Sepia, sensation of a weight or a heavy lump in the anus; the stool is very difficult, covered with mucus, and sometimes impossible to pass, even with terrible, involuntary strainings. Sepia is said to be specific for constipation in pregnant females.

Silic, constipation, stool large or composed of hard lumps, light colored; expulsion difficult, as from inactivity of the rectum; after much effort and straining, the stool recedes back into the rectum after having been partially expelled.

Sulph., stools hard knotty insufficient; the first effort to stool is often very painful, compelling the patient to desist; frequent unsuccessful desire for stool.

Veratr. alb., inactivity of the rectum, it seems as if paralyzed; much straining with cold perspiration on the forehead.

Zincum, constipation, with hard, dry insufficient stool, with much straining, and rumbling in the bowels.

Accessories.—The diet should consist of gruel, mush, brown bread, fruits and vegetables, water should be drank freely, especially on arising from bed in the morning, moderate exercise should be insisted upon and cathartic medicines strictly prohibited, although sometimes it may be necessary to give an enema of tepid water or soap suds.

Diarrhœa and Dysentery.—These disorders are not so common to pregnancy as constipation with which they may alternate. The danger is prostration and abortion or mis-carriage through tenesmus, and irritation extending from the bowels to the uterus, bringing on uterine contractions.

Therapeutics :

Aloes, diarrhœa with want of confidence in the sphincter ani; sense of insecurity in the bowels, as if diarrhœa might occur at any time; stools in consistency like jelly cakes, green or white; stool yellow, fecal, bloody jelly-like mucus; worse when walking or standing, after eating or passing urine.

Antimon. crud., stools watery with little hard lumps, or containing undigested food; diarrhœa and vomiting with white coated tongue.

Apis mell., greenish, yellowish, slimy mucus, or yellow watery diarrhœa, worse in the morning; tongue dry and shining; little or no thirst.

Argent. nitr., diarrhœs of green fetid mucus passing off with much flatulence; aggravation at night, after midnight, and after eating sweet things.

Arsen., stools thick, dark green mucus, or brown black and watery; diarrhœa aggravated or renewed by eating and drinking; diarrhœa of a cadaverous smell, scenting the whole room; diarrhœa with undigested stools, accompanied with emaciation and loss of strength; great restlessness; anguish; constantly changing place; violent, unquenchable, burning thirst, with frequent drinking of small quantities of water.

Bryon, very offensive, pasty evacuation, smelling like rotten cheese; diarrhœa in hot weather, or when the disease was induced by taking cold drinks when the system was heated; ag-

gravation in the morning and from motion; drinks large quantities of water at long intervals.

Cham., diarrhœa green, watery and slimy, or like chopped eggs and spinach; hot diarrhœic stools, smelling like rotten eggs; green, watery, corroding stools with colic, thirst, bitter taste or bitter eructations.

Cinchona. off., offensive, painless undigested stools, with much distention of the abdomen; after eating fruit, undigested stools sometimes involuntary; in swarthy persons, thin, large stools, undigested or not, usually with passage of wind and sometimes colic, but always worse in the morning—worst sleep after 3 A. M.

Coloc., diarrhœa profuse and watery, preceded by violent colic; pains causing the patient to bend double, a position that yields slight relief; bloody diarrhœa with violent pains in the bowels, extending down the thighs; diarrhœa after vexation, imagination or from illtreatment.

Dulcamara, diarrhœa in cold damp weather; stools mucous, green, watery and whitish.

Ferrum, obstinate diarrhœa, composed of slime and undigested food; the stools are painless, excoriating and exhausting.

Gelsem., diarrhœa from sudden depressing emotions, fright, grief, bad news.

Ipec., stools as if fermented, green as grass, nausea and colic.

Iris versic., excessive watery discharges or bloody mucous discharges, with severe tenesmus and prolapsus of the rectum.

Magn. carb., green, sour smelling diarrhœa, lasting a long time; many stools day and night.

Mercur., stools dark green, slimy, frothy or bloody; frequent urging and tenesmus, during and after stool; chilliness between stools; nausea and eructations during stool, and burning in the anus during and after stool.

Nux mosch., stools thin, yellow like stirred eggs; diarrhœa with disposition to faint; chronic diarrhœa caused by pregnancy.

Nux vom., frequent small watery, slimy, brownish mucous

stools; colic and tenesmus before and during stool, with relief after, the previous use of quack medicines, teas, laudanum, brandy, lavender, peppermint, etc.

Phos., watery diarrhœa, pouring away as from a hydrant, with great sense of weakness in the abdomen aud general debility; stools of green mucus or whitish fluid; stools undigested, watery, with little white flakes or lumps like sago.

Phos. acid., white gray diarrhœa; copious yellow, watery diarrhœa, with rumbling in the abdomen; diarrhœa painless, but not exhausting.

Podoph., profuse watery stools with meal-like sediment; also yellow mucus stools smelling like carrion; morning diarrhœa, or diarrhœa occurring in the latter part of the night; profuse, frequent, gushing, and painless or not very painful.

Pulsat., stools greenish, yellowish, like bile; very changeable stools, no two stools alike; diarrhœa worse at night, from eating fruit or ice cream; no thirst, bad taste in the mouth, nothing tastes good.

Rheum., stools green, brown, fermented, smelling sour; colic before and during stool, and tenesmus after.

Rhus tox., stools reddish mucus, or yellowish mucus; cutting colic before and during stool with relief after stool; diarrhœa with drawing and tearing down the leg with every evacuation.

Secale. corn., stools brown, watery or slimy; discharges rapid and with great force; putrid fetid and colliquative diarrhœa.

Sulph., diarrhœa in the morning, driving her out of bed; has to hurry and barely escapes soiling her clothing; stools very changeable, yellow, brown, green, undigested.

Veratr. alb., stools profuse, watery, blackish or greenish; after stool great weakness with cold sweat upon the forehead, and sometimes cold general perspiration.

Diet.—The diet should be restricted to boiled milk, bread, rice, arrow root and tapioca, mucilaginous drinks such as gum arabic or slippery elm water should also be recommended.

HEADACHE occurring in the early months is usually nervous, in the later it is congestive.

THERAPEUTICS:

Aconite., stinging, beating pains in the forehead and temples, with a sensation of fullness and heaviness in the head, and aggravation by drinking and talking; sensation as if the whole brain would start out of the forehead.

Actea. rac., pain over the eyes and in the eyes, extending along the base of the brain to the occiput; heat, sense of fullness and throbbing in the head; pain in the head, is relieved in open air.

Belladonna, headache with flushed face and injected eyeballs; throbbing of the carotid arteries; aggravation from noise, bright light; when leaning forward; at night, when lying down and from motion; amelioration from closing the eyes, from pressure, when leaning backwards, by sitting up, in the morning.

Bryonia., headache begins in the morning, when opening and moving the eyes; when stooping, sensation as if all the contents of the head would issue from the forehead; aggravation from motion; after washing in cold water while the face was sweating.

Calc. carb., throbbing headache in middle of brain every morning, lasts all day; headache begins in occiput, and spreads to the top of the head, so severe she thinks the head will burst, and that she will go crazy; headache worse going up-stairs; talking or walking; in hot sun; from taking cold; better from light bandaging, closing the eyes, lying down and pressure with the cold hand.

Cocculus., headache as if the eyes were being torn out; pressing pain in forehead from without inward, with nausea; aggravation by riding in a wagon; from eating, drinking and sleeping; ameliorated during rest, indoors.

Gelseminum., headache rising from cervical spine and extending all over the head; headache, principally occipital, ameliorated by reclining with head and shoulders on a high pillow.

Glonoin., pulsating pain from below upward, with fullness and feeling of enlargement of the head; intense congestion of blood, with a feeling as if the temples and vertex would burst

open; the headache has been brought on by exposure to the rays of the sun, or is aggravated by such exposure.

Ignatia., pain as if a nail were driven out through the sides of the head, better by lying on it; headache like a pressure with something hard on the upper surface of the brain; throbbing pain in the occiput, headache worse mornings; from moving the eyes; from noise.

Nux vom., pressing on the vertex, as from a nail; as if the skull were pressed assunder; stupefying headache, especially in the morning, aggravated by mental exertion; pressive, boring pains in the head beginning in the morning, less by evening; with dim sight, sour vomiting and palpitation; worse from mental exertion, light, noise, coffee, after eating; especially suited to women who are addicted to high living, the use of wine and spirits or coffee, and to keeping late hours, or who lead a too sedentary life.

Pulsatilla, headaches, worse in the evening, after lying down; better in the open air and from compression; mild tearful disposition.

Sepia, boring headache from within outward, forenoon till evening, feels as if she would die; worse from motion and stooping; relieved by rest when closing the eyes, from external pressure, and sleep when enough has been had; headache with aversion to all kind of food.

Spigelia., headache beginning at the cerebellum (in the morning), spreading over the left side of the head, causing violent and pulsating pain in the left temple and over the left eye; pain is increased by motion, noise, and especially by stooping, one or both eyes are generally involved in the disorder.

Veratr. alb., headache causing delirium, dementia, and cold sweat on the forehead.

The diet in headache should be light, and free exercise in the open air should be advised.

HÆMORRHOIDS.—Piles, when already existing, are nearly always aggravated by pregnancy and often are not in the least troublesome or even do not exist at any other time, they are

dependant on congestion and pressure on the hæmorrhoidal veins.

THERAPEUTICS:

Aeon., bleeding piles; stinging and pressure in the anus; abdomen feels full, with tensive, pressive and colicy pains; bruised feeling in the back and sacrum.

Aesculus hipp., hæmorrhoids blind and painful, rarely bleeding; hæmorrhoids, with severe pain across the back and hips, as if they would break in two, with bearing down; large hæmorrhoids, which quite block up the rectum, without much hemorrhage.

Aloes., hæmorrhoids protrude, like grapes, with constant bearing down in the rectum, relieved by the application of cold water.

Arsen., blind piles, which burn like fire, relieved by heat; piles with stitching pain when walking or sitting, not when at stool.

Bell., piles with a feeling as if the back would break; piles so sensitive to the slightest touch that she has to lie with the nates separated.

Calc. carb., hæmorrhoids, which make even a loose stool painful, they are often painful while walking; the piles often bleed profusely to the extent of blanching the patient.

Collinsonia., blind or bleeding piles, with a sensation as if gravel or sand had lodged in the rectum.

Graph., hæmorrhoids, with pain on sitting down, or taking a wide step, as if split with a knife, also violent itching, and very sore to touch; painful burning cracks between the varices; protrusion of rectum, without urging to stool, as if the anus were lame.

Hamamelis, piles bleeding profusely; with burning soreness, fullness and weight; back as if it would break; urging to stool.

Mur. acid., hæmorrhoids protruding, reddish blue, burning; too sore to bear the least touch.

Nitr. acid., old hæmorrhoidal tumors, secreting much slime and bleeding profusely at every fecal evacuation.

Nux vom., hæmorrhoids blind or flowing; abdominal ple-

thora; congestion to the head; worse from high living or sedentary habits; piles with shorting shocks in the loins, contractive pains which hinder from rising up, and ineffectual urging to evacuate.

Pulsat., painful protruding piles, with smarting and soreness; discharge of blood and slime with the stool.

Sepia, protrusion of piles and rectum, even after soft stool; heat burning and swelling of the anus; the varices become hardened; oozing of moisture from the rectum; soreness between the buttocks.

Sulph., hæmorrhoids, blind, or flowing dark blood, with violent bearing down pains from small of back towards the anus; anus swollen, with sore, stitching pains.

Locally in severe cases of hæmorrhoids aesculus or stramonium ointment, or a flax seed poultice may be of service, also bathing with cold water.

Oedema.—Swelling of the lower extremities, especially in the latter part of pregnancy, is nearly always present; it usually depends on impeded circulation resulting from pressure on the veins by the gradually developing uterus, sometimes, however, it is dependant on albuminuria or renal congestion, in which case the puffiness is not confined to the lower, but extends as well to the body and upper extremities, even a general dropsy may occur. If there should be a full flushed face with puffiness of the lower eyelids, accompanied by albuminuria, there is reason to fear convulsions.

Albuminuria is often present during pregnancy, and, if neglected, may lead to permanent, Bright's, or other kidney diseases.

Uraemia.—Owing to pressure on the kidneys and ureters and possibly part to irritation and congestion of these organs, there may be secreted an excess of urea to such an extent as to produce the true effects of this poisen even to convulsions, generally, however, no grave results follow.

Therapeutics:

Apis., very scanty urine with thirstlessness; œdema of face,

hands, legs, ankles, feet and labia; skin pale, waxy, almost transparent.

Apocyn. cann., œdema of the feet and ankles; dropsy with great thirst, but water causes pain or is vomited; torpid action of the kidneys.

Arsenic., burning swelling of the head and face, with great weakness and coldness; puffiness of the face, especially around the eyes; pale death-like appearance of the face; suppressed or difficult urination; great restlessness, especially after midnight; sense of suffocation when recumbent; great thirst, drinking little at a time but often; is afraid to drink much, it may cause more oppression; œdematous swelling of the feet.

Aurum., melancholy mood with desire for death; bloated, glossy face, worse from mental exertion; painful retention of urine, with pressure in the bladder; urine clear, gold colored; turpid urine like buttermilk, with much sediment of mucus; urine ammoniacal, decomposes rapidly; hot red urine containing sand.

Bell., urine deep red, with a light sediment; blood colored urine; the urine becomes turbid like yeast, with a reddish sediment; urine dark and scanty, sometimes it is as yellow as gold.

Benzoic acid., urine high colored; increased specific gravity; hot, scalding; ammoniacal; awakens every morning at 2 o'clock with humming in the ears and beating in the temporal arteries, which prevents her going to sleep.

Bryon., the swelling increases during the day, and diminishes during the night; urine dark and scanty with a pinkish sediment.

Cactus grand., œdema of the hands, mostly of the left; œdema of the feet and legs up to the knees, skin shining; dents remain a long time; frequent desire to urinate, with copious flow; straw colored urine; urine passed by drops, with burning.

Cantharis., burning, stinging and tearing in the kidneys, extending along ureters into the bladder; constant desire to urinate passing only a few drops at a time; albuminous urine, containing cylindrical casts.

Cinchona. off., when dropsy is the consequence of profuse hemorrhages or loss of animal fluids; urine dark, scanty and sandy.

Colchicum., œdematous swelling of the face, with great paleness; œdema of the hands, legs and feet with coldness; urine dark and scanty, discharged in drops, depositing a whitish sediment.

Digitalis., flabby œdematous swelling all over; blueness of the eyelids and lips; bluish hue of the skin; intermittent pulse; cold skin; swelling which easily yields to the pressure of the finger; urine scanty, thick, turbid, blackish.

Dulcamara, dropsy after suppressed sweat by damp cold air.

Ferrum, œdematous swelling of the body; cool skin; constant chilliness and evening fever; very weak and nervous, yet the face is very red.

Helleborus., œdematous pale, swelling of the face, or pale yellowish color of the face; the secretion of urine is almost suppressed; the urine is very dark, and deposits a dark coffee ground sediment; debility, fever, pain in limbs; diarrhœa of jelly like mucus.

Helonias., dropsy from albuminuria, general debility, uterine atony, hemorrhages; urine pale yellow; sp. gr. 1013, acid, gets up two or three times at night to urinate.

Kali carb., anæmia with great debility, skin, watery, milky, white; sacculated swelling of the upper eyelid; cough worse at 3 A. M. More particularly indicated for aged women.

Lachesis., dropsy from liver and spleen diseases; urine black; legs œdematous, first left, then right.

Lactuca., œdematous swelling of the whole body, with asthmatic complaints.

Ledum., œdematous swelling of the whole body; she feels very cold and cannot keep warm.

Lycopodium, œdema of the feet; ascites; urine scanty with red sediment; severe backache, relieved by passing urine; upper

portion of body emaciated, lower, enormously swollen; one foot cold, the other hot; restless sleep, worse when getting awake.

Mercurius cor., œdematous swelling of the face; albumen in the urine; œdema of the labia.

Phosphor., œdematous swelling of the face, hands and feet; skin pale and anæmic; urine turbid, whitish, like curdled milk, with brickdust sediment and variagated cuticle on the surface; albumen cells in the urine.

Phytolacca., albuminous urine; dark red urine, leaving a deep red stain in the vessel.

Rhus tox., dropsy with turbid urine; œdema of the lower limbs; before lycopodium.

Senecio., abdomen very tense; lower extremities œdematous; urine scanty and high colored, or alternating with profuse and watery discharges; pain in the lumbar regions and in the ovaries.

Sepia, must rise at night and urinate frequently; urine turbid with sediment of red sand, which adheres to the sides and bottom of the vessel with great tenacity; urine red, blood-red, with a white sediment and cuticle on the surface; urine so offensive it cannot be allowed to stand in the room; œdema of the labia.

Sulphur, as an intercurrent remedy, when well chosen remedies do not act, or the well known characteristics point to it.

Terebinthina., difficult micturition; the urine smells of violets; urine deposits a slimy, thick, muddy sediment; urine bloody, the blood thoroughly mixed with the urine; urine scanty, turbid, dark, epithelial sediment; albuminous; pressure in the kidneys when sitting, better from motion; dropsy with kidney affections.

Uranium nitr., illtemper and humor, she is cross with everybody; general malaise, she feels cross and disagreeable; desire to urinate immediately after voiding urine; micturition increased in frequency (twelve times in twenty-four hours) preceded by pain over the left eye; contracted feeling in throat, and eructatious; diabetes with albuminuria.

In addition to the remedies above given, rest in the recumbent posture, frequent ablutions with moderately cool water, and, if the œdema is confined to the lower extremities, the feet, if the patient insists on being up, may be elevated when sitting, as on a chair, equable bandaging, or what is better, elastic hose may be resorted to.

VARICOSE VEINS.—Enlargement and painful distention of the veins of the legs, vagina and vulva often give rise to a great deal of suffering in the latter half of pregnancy; this varicose condition is caused by pressure, and is principally amenable to postural and mechanical treatment. It will be observed usually that the veins are normal on arising from bed every morning, and become worse as the day advances, or the longer the woman is on her feet, which would suggest the appropriateness of rest on a sofa or with the feet elevated on a suitable support. Elastic hose and an abdominal supporter will also prove of great benefit. The remedies that have been found useful are:

Pulsatilla, painful and inflamed veins of a bluish color, causing swelling of the limbs, in patients having the *Puls.* temperament.

Aconitum, may be alternated with either *Puls.* or *Ham.* when there is pain or a general febrile condition.

Nux vomica., varices, with enlargement of the abdomen, hæmorrhoids, constipation, and frequent bearing down pains.

TOOTHACHE of a neuralgic origin occurs quite frequently in the earlier months of pregnancy; it is not always nervous in character but may depend on inflammation of the gums or on a decayed tooth, and it is a well known fact that in case of a tendency to decay in the teeth, pregnancy usually precipitates the difficulty.

THERAPEUTICS:

Aconite., toothache from cold, from dry cold winds with throbbing on one side, redness of the cheek, congestion to head, great restlessness, left side, or from right to left.

Alumina., drawing toothache, extending to other parts as down the larynx, neck or shoulders; teeth feel loose and elongated, worse from chewing; in open air, evening.

Ars., jerking toothache, extending to the temple, relieved or removed by sitting up in bed; toothache relieved by warm application, or striking the head.

Bellad., toothache some minutes after eating, not during; increases gradually to high degree and as gradually diminishes; extremely painful swelling of gums on right side.

Calc. carb., toothache after drinking cold liquids, or excited by a draught of cold air; toothache worse from warm or cold drinks.

Chamom., the pains are perfectly unbearable, and give rise to much irritability of temper and impatience; the pain is excited if any thing warm is taken into the mouth, especially coffee, or from being in the open air, or getting warm in bed, at night.

Coffea., toothache with restlessness, anguish and weeping mood, especially at night and after a meal; amelioration from holding ice or ice cold water in the mouth.

Gelsem., toothache from a cold, or purely nervous; pains from teeth to temple.

Hyosc., toothache driving to despair; tearing, throbbing, extending to the cheeks along lower jaw.

Magn. carb., toothache at night, compelling one to rise and walk about, the pain is insupportable while at rest.

Mercurius., toothache from caries, or when the dentine is inflamed; returns in damp weather or evening air; pains tearing, lacerating, shooting into face and ears; worse from warmth of bed, from cold or warm things; better from rubbing the cheek.

Nux mosch., pain in front teeth; stinging, tearing; worse during cold, damp weather; from washing; from touch or sucking teeth; better from warmth.

Nux vom., toothache, with swollen face, worse from reading or thinking; is worse from cold or cold things; better from warm drinks; worse from coffee or wine.

Phosphor., toothache from washing clothes, or from having the hands in cold or warm water.

Pulsat., toothache on one side of the face, always relieved

by going into the open air, but returns in a warm room; the pains are throbbing or shooting accompanied with much swelling, worse in the evening.

Rhus tox., toothache from getting wet; pain is relieved by applying warmth to the face.

Sepia, toothache, the pains are beating, stitching and extend to the ears and along the arms to the fingers, where they terminate in a creeping sensation.

Staphisagria, gnawing, tearing in decayed teeth; shooting into ear, throbbing in temples; worse from cold drinks and touch, but not from biting on them; gums white, swollen, ulcerating, spongy, bleed when touched.

Sulph., toothache coming on in the open air, or from the least draught, or at night in bed, or from washing with cold water; with congestion to the head, or with stitches in the ears.

In case the above remedies fail and the trouble is owing to a decayed tooth, it should by all means be promptly filled by a reliable dentist, and if it is to far decayed to fill, it may safely be extracted.

Dyspnœa.—Occasionally, when there exists no organic lesions of the lungs, there may occur oppression and difficult breathing. This, if occurring in the early part of pregnancy, is to be attributed to reflex nervous sympathy, if present toward the end of gestation it is generally caused by mechanical pressure.

Therapeutics:

Aconit., where the dyspnœa is attended with general plethora, palpitation of the heart, flushed face and great anxiety.

Arsen., if attended with great weakness, pallor and bloating of the face and swelling of the feet.

Cinchona., if attended with flatulence and bloating of the abdomen.

Ipecac., if accompanied with nausea or a disposition to vomit; paleness of the face and faint feeling.

Nux vom., if attended with a rush of blood to the head.

Pulsat., if attended with weak stomach; bitter taste in the mouth and water brash.

PALPITATION.—This difficulty is very common, particularly in hysterical subjects, and is usually more annoying shortly after conception, or about quickening and sometimes in the last month of gestation when it may result from pressure.

THERAPEUTICS:

Aconit., palpitation of the heart with great anguish.

Arsen., palpitation of the heart, especially at night, with great anguish; cannot lie on the back; the palpitation is excited by going up-stairs.

Bell., violent palpitation of the heart, reverberating in the head.

Cactus grand., palpitation of the heart, worse when walking, and at night when lying on the left side.

Calc. carb., palpitation of the heart at night, after eating, with anguish.

Ignat., palpitation of the heart at night, with stitches in the heart.

Natr. mur., violent palpitation of the heart from every exertion, and especially when lying on the left side.

Nux mosch., palpitation of the heart with attacks of fainting, followed by sleep.

Phosph., palpitation of the heart from every mental emotion.

Pulsat., palpitation of the heart in violent paroxysms, often accompanied by anguish and vanishing of sight.

Rhus tox., violent palpitation of the heart when sitting still.

Spigel., violent, visible and audible palpitation of the heart, aggravated when bending the chest forward.

Staphisag., palpitation of heart from the least exertion; from mental exertion; from hearing music and after the siesta.

Veratr. alba., violent, visible, anxious palpitation of the heart.

VERTIGO.—Accompanied by dimness of vision, and amounting in some instances to fainting, is not unusual during pregnancy, and is perhaps in the greater number of cases dependant on plethora.

THERAPEUTICS:

Aconite., congestion of blood to the head; buzzing in the ears; violent palpitation of the heart.

Arsenic., where the least effort causes fainting; great debility and prostration; pale, bloated face.

Carbo. veg., fainting from weakness, caused by loss of animal fluid.

Cinchona, after loss of blood, with ringing in the ears, coldness of the skin, loss of pulse, and cold perspiration.

Coffea., fainting from sudden emotions.

Ignat., where the fainting seems to result from grief; much trembling, sighing and sobbing.

Laches., fainting, with pain in the heart; nausea, pale face, vertigo.

Nux vom., tendency to faint; from odors; in the morning; or after eating; with congestion of blood to the head or chest, with trembling.

Sepia, fainting after getting wet or from riding in the carriage; feet and hands cold as ice; flushes of heat.

Veratr. alb., fainting from the slightest exertion; cold sweat upon the forehead.

Accessory means are bathing the face and head with cold water, cool acidulated drink, as lemonade, sour wine, diluted with cold water, and rest in the recumbent posture.

ENURESIS.—Incontinuance of urine may occur in both the earlier and later months of pregnancy, in the former it is dependant on pelvis irritation and anteversion or flexion of womb, in the latter on pressure, and in some cases, particularly where there is a roomy pelvis, is the source of great annoyance, especially during coughing, sneezing or laughing.

Pulsatilla, incontinence in feeble, sensitive, and timid patients; there is frequent desire to urinate, with spasmodic pains in the neck of the bladder, and watery urine. A dose every few hours.

Nux vomica, this remedy is useful in females of an opposite temperament with similar symptoms.

Cantharis., irritation of the bladder, with irresistible desire to urinate, and only a few drops of scalding, acrid urine passed at a time.

Belladonna, relaxation of the neck of the bladder, with inability to retain the urine; the emissions are copious, frequent and watery, or yellow and turbid.

Cannabis sat., involuntary emissions, from irritation of *gravel.*

Cina., frequent desire, and passage of turbid urine, which may occur involuntarily in bed, from the *irritation of worms.*

Dysuria, dependant on the same causes as incontinence, may also be met with.

Cantharis., urging to urinate, with cutting and tearing pains.

Nux vomica., painful ineffectual desire to urinate, with discharge drop by drop, especially in persons accustomed to alcoholic beverages. This remedy often enables the bladder to recover its contractile power.

Aconitum, retention, with inflammatory symptoms.

Belladonna, retention, with congestion to the head, redness of the face, etc. Either of the last two remedies may be alternated with or precede *Cantharis.*

Camphor, sudden spasmodic retention, with burning and great pain. It is chiefly useful at the commencement of the difficulty, and when but little fever exists. Coldness and shivering are further indications for this remedy.

Accessory Means in Urinary Difficulties.—The patient should make regular efforts to pass water; and if she fails in her endeavors, a single introduction of the catheter will generally remove the difficulty. Often, however, the use of the catheter is entirely superceded by one or more of the medicines just recommended, or even by the following measures. The sudden application of a towel to the abdomen, after immersion in cold water, often causes an immediate contraction of the bladder, and consequent discharge of urine. Sometimes the alternate application of a hot and cold towel is speedily successful. Even plunging the hands into a full basin of very cold water, and moving them about, is generally followed by an immediate dis-

charge of urine. Fomentations, and injections of water up the bowel or vagina, afford great relief, and often supersede the use of the catheter. The diet must be sparing, and, in severe cases, restricted to gruel and demulcent drinks—barley-water, gum-water, linseed-tea, or simple cold water. Tea and coffee should be taken very sparingly, or altogether omitted for a time. A change of the drinking water is often advisable, especially if pure soft water can be obtained. Acids, and too much salt, should be avoided.

Pruritus is sometimes met with, it is generally dependant on an acrid leucorrhœa, but is sometimes of nervous origin, and again may be caused by ascarides or pediculi, there may also be an aphthous condition of the mucous membrane.

Therapeutics:

Mecurius., Aphthous or eczematous pruritus.

Sepia, inflammation and swelling of the vulva; leucorrhœa, with bearing-down and excoriation of the parts.

Graphites., itching with excoriations or vesicles. It should be administered internally and as a wash (from the 1. x trit.).

Platina., pruritus associated with ovarian or uterine disorder.

Kreasote., pruritus with *fœtid* corrosive leucorrhœa.

Arsenicum, chronic, eczematous pruritus.

Borax, this remedy has often great power over this affection, and should be used internally, and as a wash.

Conium., itching and soreness of the parts from acrid milky leucorrhœa.

Collin., Bell., Sulph., Lyc., Thuja, or *Acon.*, may also sometimes be required.

Locally, if dependant on ascarides, a wash composed of an infusion of tobacco or garlic gives relief.

Leucorrhœa and Hydrorrhœa.—Sometimes very profuse, are quite common during pregnancy, and in addition to the prostration, necessarily ensuing, often produce excoriations, apthæ, pruritus and warty excresence, the causes generally owing to a congestion of the vaginal walls, occasionally, however, there may be granular ulceration of the os uteri.

THERAPEUTICS:

Dr. Ruddock gives the remedies for leucorrhœa as follows:

"*Pulsatilla.*, in leucorrhœa *during pregnancy,* when the discharge is a *thick white mucus,* or is corrosive with itching, etc. *Wandering pains* in the abdomen, flatulence, and the Pulsatilla temperament are further indications.

Calcaria carb.—Chronic leucorrhœa in children and in women of weak, *scrofulous,* and lymphatic constitution, particularly those who menstruate too *frequently* and too *profusely;* the leucorrhœa has a milky appearance, is worst just before the menses, is often attended with itching or burning, or with pains shooting through the parts, and sometimes falling of the womb.

Iodium, in constitutions similar to those mentioned under *Calc. Carb.*, when there is an offensive, thin discharge; with *emaciation.*

Sepia, yellow, greenish, or fœtid discharge, worse before the menses; scanty menstruation; bearing-down pains; costiveness; sensitiveness to cold; languor; delicate, unhealthy skin.

Xanthoxylum, leucorrhœa with amenorrhœa, or dysmenorrhœa, especially in nervous persons, of a delicate organization.

Helonias, leucorrhœa with relaxation of the womb and its appendages. It improves the tone of the sexual organs, and at the same time corrects the co-existing general debility.

Hydrastis, leucorrhœa with abrasion or superficial ulceration of the parts, and co-existing indigestion and debility. It should be used locally also, six drops of the extract to an ounce of water.

Mercurius, leucorrhœa of a yellowish character, or of a purulent nature with soreness and itching; profuse menstruation, the discharge being thin and unhealthy-looking; weakness, coldness, sallow complexion, etc.

China, after long-continued or excessive discharges, for the consequent debility; also after other debilitating diseases which have induced leucorrhœa.

Arsenicum, thin, burning leucorrhœa, from passive or atonic hyperaemia of the uterus, is most benefited by this remedy. Menstruation recurs too frequently, the discharge is excessive,

and in the inter-menstrual period there is persistent Leucorrhœa. According to Dr. J. H. Aveling, the results of *Arsenic*, given in gradually increasing doses, are most satisfactory.

Hamamelis, moderate or excessive discharge, more or less *taking the place of menstruation* with much *pain about the groin*, scalding urine, etc.

Sulphur, chronic cases and *scrofulous constitutions*. It may follow, or be given in alternation with any one of the above remedies; in the latter case, *Sulph.* for seven or ten days, and the other remedy selected the next seven or ten days, and continue to repeat as long as necessary.

Accessory means.—There are several conditions which are absolutely essential to the successful treatment of "Whites," the most important of which are the following:—*Rest*, in the horizontal posture, is necessary in the treatment of this, as it is of most other uterine disorders. Active exercise aggravates an existing leucorrhœa, just as it does congestion, or inflammation of the womb. At the same time, moderate exercise in the open air, especially in the intervals between the attacks, short of inducing fatigue, is essential for the maintenance of the general health. Other accessories of importance are—a diet chosen with the view to its nourishing properties, and to its ready assimilation; avoidance of all sexual excesses, indulgence in the pleasures of the table, exciting spectacles, crowded balls and parties, lascivious imaginings, etc.; and, lastly, frequent injections of water, and daily ablutions, including the *hip-bath*, are necessary, in order to insure the most perfect *cleanliness* of the utero-genital organs.

The importance of this last point cannot be too strongly stated, for without a due attention to cleanliness all other efforts may prove futile. This morbid secretion is at best exceedingly irritating, but when it is permitted to accumulate and remain for a long time in contact with the mucous membrane, it becomes partially decomposed, fœtid, and highly pernicious to the healthy condition of the parts."

Injections of weak green tea, and if the discharge is

purulent, calendula tincture in the proportion of an ounce to the pint of water may be used with advantage; if the discharge is very offensive in odor, a weak solution, say one dram to the pint of water, of permanganate of potash will be found beneficial. All injections should be moderately warm.

CHAPTER. IV.

DISEASES OF PREGNANCY.—*Continued.*

JAUNDICE.—Icterus is a frequent accompaniment of utero gestation, it is sometimes dependant on sympathy, and in the latter months on pressure.

THERAPEUTICS.

Bryonia, stitching pain on pressure in the liver; pain in the pit of the stomach; pain in the limbs, worse from motion; obstinate constipation; thick, white, coated tongue; nausea; gagging; vomiting after eating and drinking; general malaise; disinclination to move.

Digitalis, constant nausea and gagging, with a clear tongue covered with white slime; soreness and bloatedness of the pit of the stomach; soreness and hardness in the region of the liver; stool delayed, chalky; urine scanty, thick, turbid, blackish; pulse full, slow; chilliness and shuddering alternating with heat; tearfulness, low spirited.

Gelsem., prostration; clay-colored, creamy stools.

Hydrastis, gastro-duodenal catarrh; sense of sinking and prostration at the epigastrium, with violent and continued palpitation of the heart.

Lach., in different liver complaints; during the climacteric age; after intermittent fevers; pain as if something had lodged in the right side, with stinging and sensation as if forming into a lump moving towards the stomach; inability to bear anything tight around the waist, not even the pressure of the night-jacket; pain when coughing, as if ulcerated.

Magn. mur., chronic hard swelling of the liver, with passive pain extending to the back and stomach; face dirty, dark-yellow; tongue dirty, yellowish; bowels distended and hard, with pressure and heaviness; stool hard, gray; urine turbid; dyspnœa; palpitation of the heart; œdema of the feet up to the

calves of the legs; weak, emaciated; fearful, easily frightened.

Merc., one of the most frequently indicated remedies, with and without fever; duodenal catarrh, thickly coated, flabby tongue; showing the imprints of the teeth; bad smell from the mouth; nausea, loathing; vomiting; soreness in the region of the liver; diarrhœa; gall-stones; jaundice; after abuse of Peruvian bark.

Nux vom., gastro-duodenal catarrh; after allopathic dosing; overloaded stomach; use of coffee, liquor, sedentary life; anger. In complication with gall-stones. Headache, dizziness, loss of appetite, bitter taste; nausea, vomiting, gagging; pressure in the stomach, better from belching, soreness of pit, stomach and bowels; unsuccessful urging to stool, constipation. Itching of the skin in the evening; restless sleep; wakes about three or four o'clock in the morning and falls again into a heavy, unrefreshing morning sleep; peevish, irritable.

Podoph., in complication with gall-stone; then the pain extends from the region of the stomach towards the region of the gall-bladder, and when at its height is mostly attended with excessive nausea; or in complication with inflammatory or hyper æmic states of the liver; then there is a fulness, with pain and soreness, in the right hypochondrium; chronic costiveness or alternate constipation and diarrhœa.

Pulsat., in consequence of chronic susceptibility to hepatitis and derangement of the secretion of bile, with looseness of the bowels; duodenal catarrh; disordered digestion; feverishness and thirstlessness.

Sepia, with pain confined to the liver; yellow saddle across the bridge of the nose; brown, yellowish color of the eyelids.

Sulphur, in psoric persons, with or without hardness and swelling of the liver; vomiting of ingesta or blood; pain in the pit of the stomach and right hypochondrium; stool constipated; sleeplessness; nightly itching of the skin; hectic fever; red lips.

Insomnia.—Sleeplessness, especially in nervous subjects, is sometimes met with in pregnancy. It may occasionally de-

pend on the movements of the fœtus, or to close confinement to an overheated or ill ventilated room.

THERAPEUTICS:

Aconite., sleeplessness caused by fear, fright, or anxiety, with fear of the future; sleeplessness after midnight, with anxiety, restlessness, continual tossing about; eyes closed.

Ambra gr., cannot sleep at night, yet knows not why.

Bellad., sleepy, yet cannot sleep. Starts as if in affright, during and from sleep.

Cactus grand., sleepless without cause; or from pulsations in the pit of the stomach or in the ears.

Chamomil., scarcely sleeps, and on falling asleep is tormented by anxious, frightening dreams.

Cinchona, sleeplessness at night; she lies awake nearly all night, thinking, restless and uneasy, and miserable the next day.

Coffea cruda, sleeplessness from over excitement of body or mind.

Gelsem., languid, drowsy, but cannot compose the mind for sleep.

Ignatia, sleep very light, hears everything, even distant sounds, during sleep.

Lycop., drowsiness during the day and sleepless at night.

Nux vom., awakens at 3 A. M., lies awake for hours, with a rush of thoughts; falls asleep with the bright morning, with troublesome dreams, and gets up more tired than in the evening.

Opium, sleeplessness with acuteness of hearing; clocks striking and cocks crowing at a great distance keep her awake.

Pulsat., sleepless after late supper, or eating too much, or from ideas crowding on the mind. Sleepless the first part of the night, sleeps late in the morning.

Rhus tox., sleeplessness, especially before midnight; restless, must change position.

Staphisagria, sleepy all day, awake all night, body aches all over.

Accessories.—Due attention should be given to moderate exercise in the open air, proper diet consisting of light, easily and

digestible articles, especially for the evening meal; bath in tepid water before retiring, and care should also be exercised to keep the mind clear and tranquil, all of which will be found of great service in these cases.

Cramps.—During the latter half of pregnancy there are in many cases painful contractions of the muscles and ligaments of the lower extremities and in the region of the pelvis; they are dependant on pressure on the nerves and distention of the veins, and are usually benefited more by frictions and keeping the recumbent posture; however, the following remedies may be given with occasional advantage:

Cramps and uneasy sensations in the calves and feet.—Ver.-Vir., Viburnum, Cham., or Camph. The last named remedy is often of the greatest value, and may be used both internally and locally. 2. *Cramps with dyspepsia, sick headache, etc.*—Nux V., Bry., Iris, or Sep. 3. *Aching in the back and loins from fatigue, etc.*—Arn., Rhus, or Kali-Carb.

Friction will afford relief.

Ptyalism.—A profuse discharge from the salivary glands is an occasional distressing accompaniment of pregnancy. It is generally confined to the early months, sometimes, however, during the whole period of utero gestation, and may become very profuse. *Small pieces of ice* may also be held in the mouth with benefit.

Therapeutics:

Kali bichr., viscid, stringy saliva, hangs in long strings from the mouth.

Kali hydro., viscid, salty saliva.

Merc., salivation, with easily bleeding gums.

Natr. mur., profuse salivation, running together in the mouth continually.

Sulph., saliva profuse, with nauseous taste, "all her trouble seems to be caused by this nauseous saliva."

Puls., constant spitting of frothy, cotton-like mucus.

Paralysis.—A numbness or dead feeling in one limb, sometimes a leg, again an arm, or even a portion of the body is not

an unusual complication of pregnancy, and in some cases there may be a complete paralysis of the parts affected; this difficulty is generally the result of pressure on certain nerves but may also be brought about by nerve irritation.

THERAPEUTICS:

Aesculus glabra, paralytical affections of the lower extremities.

Aesculus hypo., paralysis of the upper extremities.

Aluminum met., paralysis of the lower extremities; loss of sensibility of the feet.

Ars., paralysis associated with great prostration.

Caul., paralysis with partial loss of sensation in the affected limb.

Caust., paralysis of face and tongue or hemiplegia; drawing lame feeling in the affected part.

Coccul., paraplegia occurring in debilitated nervous patients; cold feeling of the extremities and œdema of the feet.

Dulc., paralysis of the upper and lower extremities which are not devoid of sensation but the circulation is so infered with as to occasion a peculiar coldness.

Gels., in paralysis where the muscles seem to have only lost power of contraction at the will of the patient, there being no loss of sensation or the slightest change in temperature.

Lach., paralysis of left side.

Nux vom., in complete paralysis of the face, or arms, or legs, with vertigo; painful twitchings, and spasmodic contractions occur whenever the part is exercised.

Phosph., paralysis of the upper and lower extremities, tingling and tearing pain from the back down into the limbs.

Sil., paralysis of the left hand, with atrophy and numbness in the fingers; paralysis of the leg, always worse in the morning, with heaviness in the head and ringing in the ears.

Stannum, hemiplegia, especially on the left side, with a feeling of a heavy load in the affected arm and corresponding side of the chest.

CHOREA.—St. Vitus' Dance is dependant on the same causes as paralysis, and, though not very common, gives rise to

serious results, as abortion and all its evil consequences, and may, if not promptly treated, superinduce lasting nervous disorders.

THERAPEUTICS:

Agaricus, the spasmodic motions range from simple involuntary motions and jerks of different muscles to a dancing-like turning of the whole body; frequent nictitation of the eyelids; redness of the inner canthus of the eyes; flow of tears from the eyes; sensitiveness of the lumbar vertebræ; worse during the approach of a thunderstorm.

Bellad., throwing the body forward and backward in lying, a kind of constant changing from emprosthotonos to opisthotonos; boring the head into the pillow; grating of the teeth; sore throat; numbness in the fingers; soreness of the last lumbar and the first dorsal vertebræ; after mental excitement.

Caulophyllum is an excellent remedy in chorea of pregnancy.

Cimicifuga, chiefly on the left side only.

Crocus, jerking in the muscles; spasmodic contractions of single sets of muscles; jumping, dancing, laughing, whistling; wants to kiss everybody; congestion of the head with bleeding of the nose.

Cuprum, commences in one arm and spreads over the whole body, causing the most terrible contortions and awkward movements; inability to speak, or only imperfectly; after fright.

Ignatia, especially when caused by fright or other mental excitement; worse after eating; better when lying on the back.

Laurocerasus, she tears her clothing; strikes at every thing; spasmodic deglutition; indistinct articulation; she gets angry because she cannot be understood; idiotic expression of the face; cold, clammy feet up to the knees; she can neither stand nor sit, nor lie down, on account of the incessant motion; wasting away; after fright.

Nux vom., when attended with a feeling of numbness in the affected parts; also after much drugging.

Secale, the morbid contractions usually commence in some

muscles of the face and spread thence over the whole body, and increase even to dancing and jumping motions.

Sticta, she cannot keep her feet to the ground; they jump and dance around in spite of her, unless held fast; when lying down, her limbs feel as though they were floating in the air as light as feathers.

Stramon., the convulsive motions are often crosswise, or violent all over; preceded by formication in the limbs and a melancholy mood; worse during the equinoxes; inclination to pray; loss of memory; stammering; loss of speech; putting the hands to the genitals.

Veratrum viride, most violent distortions of the body, universal, unaffected by sleep; lips embossed with foam; waked up by a continual champing of the teeth; inability to swallow; intense sexual excitement.

Relaxation of the Pelvic Articulations.—In the course of normal pregnancy there is nearly always towards the end of gestation a certain amount of relaxation of the articulations of the pelvis, and this only with benefit, as it tends to make easy the passage of the fœtus through the pelvic canal. Cases, however, are on record in which this relaxation was so excessive as to interfere with locomotion. I have one patient that in three successive pregnancies has suffered to such an extent as to confine her to her room for six or eight weeks prior to delivery. In this case the ends of the pubic bones are separated, at the time, fully half an inch, and the ends are felt to move on each other when attempting to walk.

Therapeutics:

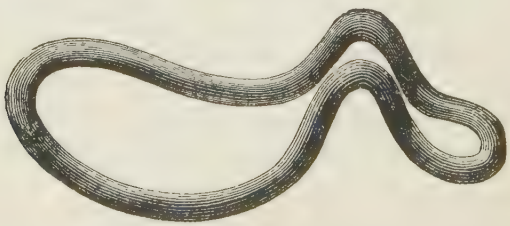
The following remedies will be found useful in relaxation of the pelvic articulations: *Calc. Carb.*, *Calc. Phos.*, *Rhus tox.*, and when caused by an accident, *Arnica*. Absolute rest and a tight fitting bandage should also be applied and worn constantly.

Displacements of the Gravid Uterus.—Any variety of malpositions of the uterus may be met with during pregnancy,

and are the sources in many cases of grevious results; the practitioner of midwifery should therefore always be on the look out for these cases and take prompt measures for their relief.

Prolapsus.—Prolapse, which is rare, is almost always the result of pregnancy occurring in a uterus which had been previously more or less procident. Under such circumstances the increasing weight of the uterus will at first necessarily augment the previously existing tendency to protrusion of the womb, which may come to lie partially or entirely beyond the vulva. In the great majority of cases, however, as pregnancy advances, the prolapsus cures itself, for at or about the fourth or fifth month the uterus will rise above the pelvic brim. It has been said, however, that in some cases of complete procidentia, pregnancy has gone on even to term, with the uterus lying entirely outside the vulva. Most probably these cases were imperfectly observed, the greater part of the uterus being in reality above the pelvic brim, a portion only of its lower segment protruding externally; or, as has sometimes been the case, the protruding portion has been an old standing hypertrophic elongation of the cervix, the internal os uteri and fundus being normally situated. Should a prolapsed uterus not rise into the abdominal cavity as pregnancy advances, serious symptoms will be apt to develop themselves; for, unless the pelvis be unusually capacious, the enlarging uterus will get jammed within its bony walls, the rectum and urethra will be pressed upon, defecation and micturition will be consequently impeded, and severe pain and much irritation will result. In all probability such a state of things would lead to

Fig. 15.



CAR'S PESSARY.

abortion. The possibility of these consequences should, there-

fore, teach us to be careful in the management of every case of prolapsus, however slight, in which pregnancy occurs. The most absolute rest, in the horizontal position, should be insisted on; while the uterus should be supported in the pelvis by a full-sized Hodges or Car's pessary, which should be worn until at least the sixth month, when the uterus would be fully within the abdominal cavity. After delivery, very prolonged rest should be insisted on, in the hope that the process of involution may be accompanied by a cure of the prolapse. There can be no doubt that pregnancy carried to term affords an opportunity of curing even old-standing displacements, which should not be neglected. See case of R in American Observer.

Anteversion of the gravid uterus seldom produces symptoms of consequence. In all probability it is common enough when pregnancy occurs in a uterus which is more than usually anteverted, or is anteflexed. Under such circumstances, there is not the same risk of incarceration in the pelvic cavity as in cases in which pregnancy exists in a retroflexed uterus, for as the uterus increases in size it rises without difficulty into the abdominal cavity. In the early months the pressure of the fundus on the bladder may account for the irritability of that viscus then so commonly observed.

Extreme anteversion of the uterus, at an advanced period of pregnancy, is sometimes observed in multiparæ with very lax abdominal walls, occasionally to such an extent that the uterus falls completely forwards and downwards, so that the fundus is almost on a level with the patient's knees. This form of pendulous belly may be associated with a separation of the recti muscles, between which the womb forms a ventral hernia, covered only by the cutaneous textures. When labor comes on, this variety of displacement may give rise to trouble by destroying the proper relation of the uterine and pelvic axes. The treatment is purely mechanical, keeping the patient lying on her back as much as possible, and supporting the pendulous abdomen by a properly adjusted bandage. A similar forward displacement is observed in cases of pelvic deformity; and in the

worst forms, in rachitic and dwarfed women, it exists to a very exaggerated degree.

Retroversion.—The most important of the displacements, in consequence of its occasional very serious results, is retroversion of the gravid uterus. It was formerly generally believed that this was most commonly produced by some accident, such as a fall, which mechanically dislocated a uterus previously in a normal position. Undue distention of the bladder was also considered to have an important influence in its production, by pressing the uterus backwards and downwards.

Its Causes.—It is now almost universally admitted that, although the above-named causes may possibly sometimes produce it, in the very large proportion of cases it depends on pregnancy having occurred in a uterus previously retroverted or retroflexed. The merit of pointing out this fact unquestionably belongs to the late Dr. Tyler Smith, and further observations have fully corroborated the correctness of his views.

In the large majority of cases in which pregnancy occurs in a uterus so displaced, as the womb enlarges, it straightens itself, and rises into the abdominal cavity, without giving any particular trouble; or, as not unfrequently happens, the abnormal shape of the organ interferes so much with its enlargement as to produce abortion. Sometimes, however, the uterus increases without leaving the pelvis until the third or fourth month, when it can no longer be retained in the pelvic cavity without inconvenience. It then presses on the urethra and rectum, and eventually becomes completely incarcerated within the rigid walls of the bony pelvis, giving rise to characteristic symptoms.

Symptoms.—The first sign which attracts attention is generally some trouble connected with micturition, in consequence of pressure on the urethra. On examination, the bladder will often be found to be enormously distended, forming a large, fluctuating, abdominal tumor, which the patient has lost all power of emptying. Frequently small quantities of urine dribble away, leading the woman to believe that she has passed water, and thus the distention is often overlooked. Sometimes the ob-

struction to the discharge of urine is so great as to lead to dropsical effusion into the cellular tissue of the arms and legs. Difficulty in defecation, tenesmus, obstinate constipation, and inability to empty the bowels, become established about the same time. These symptoms increase, accompanied by some pelvic pain and a sense of weight and bearing down, until at last the patient applies for advice, and the true nature of the case is detected. When the retroversion occurs suddenly, all the symptoms develop with great rapidity, and are sometimes very serious from the first.

The farther progress is various. Sometimes, after the uterus has been incarcerated in the pelvis for more or less time, it may spontaneously rise into the abdominal cavity, when all threatening symptoms will disappear. So happy a termination is quite exceptional, and, if the practitioner should not interfere and effect reposition of the organ, serious and even fatal consequences may ensue, unless spontaneous abortion comes on.

Fig. 16.

RETROVERSION OF THE GRAVID UTERUS.

The extreme distention of the bladder, and the impossibility of relieving it, may lead to laceration of its coats, and fatal peritonitis; or the retention of urine may produce cystitis, with exfoliation of the coats of the bladder; or, as more commonly happens, retention of urinary elements may take place, and death occur with all the symptoms of uræmic poisoning. At other times the impacted uterus becomes congested and inflamed, and eventually sloughs, its contents, if the patient survives, being discharged by fistulous communications into the rectum and vagina. It need hardly be said that such terminations are only possible in cases which have been grossly mismanaged, or the nature of which has not been detected till a late period.

The *diagnosis* is not difficult. On making a vaginal examination, the finger impinges on a smooth rounded elastic swelling, filling up the lower part of the pelvis, and stretching and depressing the posterior vaginal wall, which occasionally protrudes beyond the vulva. On passing the finger forwards and upwards we shall generally be able to reach the cervix, high up behind the pubes, and pressing on the urethral canal. In very complete retroversion it may be difficult or impossible to reach the cervix at all. On abdominal examination the fundus uteri cannot be felt above the pelvic brim, which, as the retroversion does not give rise to serious symptoms until between the third and fourth month, should, under natural circumstances, always be possible. By bi-manual examination we can make out, with due care, the alternate relaxation and contraction of the uterine parietes characteristic of the gravid uterus, and so differentiate the swelling from any other in the same situation. The accompanying phenomena of pregnancy will also prevent any mistake of this kind.

The *treatment* of retroversion of the gravid uterus should be taken in hand as soon as possible, for every day's delay involves an increase in the size of the uterus, and, therefore, greater difficulty in reposition. Our object is to restore the natural direction of the uterus, by lifting the fundus above the promontory of the sacrum. The first thing to be done is to relieve the patient by emptying the bladder, the retention of urine having probably

originally called attention to the case. For this purpose it is essential to use a long elastic male catheter of small size, as the urethra is too elongated and compressed to admit the passage of the ordinary silver instrument. Even then it may be extremely difficult to introduce the catheter, and sometimes it has been found to be quite impossible. Under such circumstances, provided reposition cannot be effected without it, the bladder may be punctured an inch or two above the pubes by means of the fine needle of an aspirator, and the water drawn off. Dieulafoy's work on aspiration proves conclusively that this may be done without risk, and the operation has been successfully performed by Scacht and others. It very rarely happens, however, and in long-neglected cases only, that the withdrawal of the urine by the catheter is found to be impossible.

Mode of Effecting Reduction.—The bladder being emptied, and the bowels being also opened, if possible, by copious enemata, we proceed to attempt reduction. For this purpose various procedures are adopted. The first to be tried is to place the patient on her knees, the breast and face resting on the bed; the index finger or even the whole hand if necessary may be introduced into the vagina or rectum, and firm but gentle pressure should be made against the fundus until reposition is affected. Should this fail, a Barnes or Molesworth's dilator should be inserted empty into the vagina or perhaps better the rectum and gradually filled with water; the distention may be continued for twenty-four or thirty-six hours, drawing off the water, however, occasionally, if too painful, and to permit of the evacuation of the bowels and bladder, but refilling soon again. Failing with the fluid pressure, we should endeavor to replace the uterus in the following way. The patient should be placed at the edge of the bed, in the left semiprone position, and thoroughly anæsthetized. This is of importance, as it relaxes all the parts, and admits of much freer manipulation than is otherwise possible. One or more fingers of the left hand are then inserted into the rectum; if the patient is deeply chloroform, it is quite possible, with due care, even to pass the whole hand; and an attempt is then made to lift or push the fundus above the promontory of the sacrum.

At the same time reposition is aided by drawing down the cervix with the fingers of the right hand, per vaginam. It has been insisted that the pressure should be made in the direction of one or other sacro-iliac synchondrosis rather than directly upwards, so that the uterus may not be jammed against the projection of the promontory of the sacrum. Failing reposition through the rectum, an attempt may be made per vaginam, and for this, some have advised the upward pressure of the closed fist passed into the canal. Various complex instruments have been invented to facilitate the operation, but they are all more or less dangerous, and are unlikely to succeed when manual pressure has failed.

Fig. 17.

RETROFLEXION OF THE GRAVID UTERUS.

As soon as the reduction is accomplished, subsequent descent of the uterus should be prevented by a large sized Hodge's or Car's pessary, and the patient should be kept at rest for some days, the state of the bladder and bowels being particularly attended to. When reposition has been fairly effected, a relapse is unlikely to occur.

Retroflexion.—This malposition is in symptoms, and the results and treatment are so nearly identical with retroversion that it is hardly worth while to consider it separately. There, is however, as will be seen in the accompanying cut, not so much change in the position of the os and cervix, which should be taken into consideration in making the diagnosis.

Figures 16 and 17 show the most frequent forms of retroversion and retroflexion. The figures 1, 2, 3, 4 and 5 in the cut show the situations respectively; 1. anus; 2. perineum; 3. posterior comisure; 4. labia majora; 5. mons veneris. *a* shows the fundus in its abnormal position and the line *b* shows the position it should normally occupy; *f* is the vagina. The cuts represent the womb at about the third month of pregnancy;

THERAPEUTICS.

After replacing the womb and enjoining rest in the recumbent posture, the following remedies, according to Raue, will be found useful; the remedies are applicable to displacements of the non-impregnated as well as the gravid uterus:

Ammon. mur., pain as from a sprain in the groin, obliging one to walk crooked; discharge of a quantity of blood with the stool during the catamenia.

Arnica, after a bruise or concussion, which leaves a bruised and sore feeling in the lower part of the abdomen, so that she cannot walk erect.

Argent., pain in the small of the back, which extends towards the front and downwards.

Aurum, after lifting a heavy load, a sense of weight in the pelvis, with ischuria and constipation, worse at each menstrual period; great dejection of spirits; longing for death, increasing to a desire for self-destruction; or vehement, the least contradiction excites her wrath.

Bellad., pressing early in the morning, as if all the contents of the abdomen would issue through the genital organs; drawing pain in the small of the back downwards; flow of blood between the periods; great dryness of the vagina; frequent, unsuccessful desire to urinate or to evacuate the bowels; only a few drops

of urine are discharged from the bladder, and some mucus from the rectum; dizziness; roaring in the ears; congestion to the head.

Calc. c., pressing on the uterus; aching of the vagina; great liability to strain a part by lifting; easily tired by bodily exertions; in walking up-stairs she feels dizzy and entirely exhausted; even talking makes her weak; great susceptibility to catch cold; the feet feel most of the time damp and cold, or else the soles of the feet are burning hot; great desire for hard-boiled eggs; big-belliedness; scrofulous diathesis.

Calc. phos., every cold causes pains in the joints, and in other places where the bones unite and form a symphysis or suture.

Cham., abortus; colicky pain and bearing down, with frequent desire to urinate; frequent discharges of coagulated blood, with tearing pains in the veins of the legs, and violent labor-pains in the uterus; she is inclined to be quarrelsome and angry; can hardly stop talking about old vexatious things.

China, general weakness in consequence of loss of vital fluids, either by hemorrhages, profuse diarrhœa, or debilitating illness; great disposition to sweat during motion and sleep; feels worse from exposure to the slightest current of air; all pains are worse from slightest touch.

Conium, pain in the mammæ before the menses; pressure from above downwards, and drawing in the legs during the menses; feeble or suppressed menses; sterility; smarting, excoriating leucorrhœa; cough during pregnancy; cough worse at night, and when lying down; vertigo, worse when lying down, or looking round, or going down-stairs; indurations in the mammæ or other glands.

Ferrum jod., retroversion and consequent pressure upon the rectum, that she can neither stand nor walk; constant tenesmus, with frequent white slimy stools; scanty, deep-colored urine; nervous and hysteric spasms; scrofulous diathesis.

Ignatia, violent crampy pressing in the region of the uterus, resembling labor-pains, followed by a purulent, corrosive leucorrhœa; the menses are scanty, black, and of a putrid odor; she seeks to be alone, is brooding to herself, and full of grief; all

her pains are aggravated by drinking coffee, or smelling tobacco smoke.

Kali c., pain in the small of the back, as though it were pressed in from both sides, with labor-like colic and leucorrhœa; also during the menses; the pains in the bowels are apt to recur about three o'clock every morning; bloated face in the morning, especially between the eyebrows and upper lids; great dryness and itchiness of the skin; great tendency to start when being slightly touched.

Lachesis, just as patients with a lachesis-sore-throat cannot bear any thing touching their neck, so do women afflicted with womb diseases constantly pull their dress from off the abdomen; violent labor-like pressing from the loins downwards during the menses, which are scanty; palpitation of the heart, with numbness in the left arm; constant feeling of something in the throat which she cannot swallow down; feeling of a ball rolling in the bladder or abdomen, or in both places; climacteric period.

Lillium tig., sensation as though the contents of the pelvis would be forced out, and has to retain them by keeping the hand on the vulva.

Lycop., chronic dryness of the vagina; pressing through the vagina on stooping; chronic suppression of the menses after fright; incarcerated flatulence; varicose veins on the lower extremities; jerking and twitching of single limbs or of the whole body, sleeping or waking; always wakes up very cross.

Merc., peculiar, weak feeling in the abdomen, as though she had to keep it up; close above the genital organs a sensation as if something heavy were pulling downward, accompanied by a pulling pain in both thighs, as if the muscles and tendons were too short. During the menses red tongue, with dark spots and burning; salt taste in the mouth; sickly color of the gums, and the teeth are set on edge; great tendency to perspire; all the symptoms worse at night; inexpressible feeling of some internal, insupportable illness.

Natr. mur., pressing and pushing from the side of the abdomen towards the genital organs early in the morning; she has to sit down to prevent a prolapsus uteri; dryness of the vagina

and painful embrace; burning and cutting in the urethra after micturition; headache on waking every morning; faint, weak voice, and exhaustion from talking; after the abuse of quinine or the local application of nitrate of silver.

Nitr. ac., violent pressing in the hypogastrium, as if every thing were coming out at the pudendum, with pain in the small of the back, through the hips and down the thighs; she feels so weak that she loses breath and speech. Inclined to looseness of the bowels; most violent cutting pain after an evacuation, lasting for hours; she feels, on the whole, better, when riding in a carriage.

Nux vom., prolapsus after straining by lifting, or after miscarriage; constant, painful pressing and burning in the uterine region; pressive pain in the small of the back, worse when turning in bed; drawing in the thighs; constant, unsuccessful urging to stool and constant desire to urinate; the patient wakes after midnight and lays awake for hours, then falls into a heavy sleep again, constantly dreaming until late in the morning, when she feels disinclined to rise. Always the first remedy after allopathic drugging.

Platina, great heaviness, pressing in the genitals, extending through the groins as far as the small of the back; profuse menses; great sensitiveness of the parts, with pressing from above down; internal chilliness and external coldness; constipation; feeling of numbness and rigidity here and there; also with trembling and palpitation of the heart; haughty disposition.

Podoph., prolapse, accompanied by great costiveness; frequent micturition; weakness and soreness of the back, especially after washing; prolapsus ani.

Pulsat., chilliness and paleness of face; bad taste in the morning and dry tongue without thirst; is easily moved to tears.

Rhus tox., after a strain or hard labor; she feels worse after any long walk; the pain in the small of the back is relieved by lying on a hard couch.

Sepia, pressing in the uterus, oppressing the breathing, from above downwards, as if every thing would come out of the vagina, accompanied with colic; she had to cross her limbs to

prevent it; followed by a discharge of jelly-like leucorrhœa; slow and difficult evacuation from the bowels, although the excrements are soft; pot-belliedness; yellow saddle across the bridge of the nose.

Sulphur, weak feeling in the genital organs and pressure on the parts; troublesome itching of the pudendum, with pimples all around and burning in the vagina; she was scarcely able to sit still; the menstrual blood is thick, black, and so acrid that it makes the thighs sore; burning and smarting leucorrhœa; sudden, imperative urging to urinate to prevent an involuntary flow; restless and sleepless nights; congestion of the head with cold feet; always feels to hot, especially her feet, which compells her to put them from under the cover; walks bent forwards; all the symptoms worse while standing; psoric diathesis.

CHAPTER V.

DISEASES CO-EXISTING WITH PREGNANCY.

The pregnant woman is, of course, liable to contract the same diseases as in the non-pregnant state, and pregnancy may occur in women already the subject of some constitutional disease. There is no doubt, that much is yet to be learnt as to the influence of co-existing disease on pregnancy. It is certain that some diseases are but little modified by pregnancy, and that others are so to a considerable extent; and that the influence of the disease on the fœtus varies much. The subject is too extensive to be entered into at any length, but a few words may be said as to some of the more important affections that are likely to be met with.

The eruptive fevers have often very serious consequences, proportionate to the intensity of the attack. Of these variola, has the most disastrous results, which are related in the writings of the older authors, but which are, fortunately, rarely seen in these days of vaccination. The severe and confluent forms of the disease are almost certainly fatal to both the mother and child. In the discrete form, and in modified small-pox after vaccination, the patient generally has the disease favorably, and, although abortion frequently results, it does not do so necessarily.

If scarlet fever of an intense character attacks a pregnant woman, abortion is likely to occur, and the risks to the mother are very great. The milder cases run their course without the production of any untoward symptoms. Should abortion occur, the well known dangerous effect of this zymotic disease after delivery will necessarily gravely influence the prognosis. Cazeaux is of opinion that pregnant women are not apt to contract the disease; while Montgomery thought that the poison when absorbed during pregnancy, might remain latent until delivery, when its characteristic effects were produced.

Measles, unless very severe, often runs its course without seriously affecting the mother or child. De Tourcoing, however, states that out of fifteen cases the mothers aborted in seven, these being all very severe attacks. Some cases are recorded in which the child was born with rubeolous eruption upon it.

Continued Fever.—The pregnant woman may be attacked with any of the continued fevers, and, if they are at all severe, they are apt to produce abortion. Out of twenty-two cases of typhoid, sixteen aborted, and the remaining six, who had slight attacks, went on to term; out of sixty-three cases of relapsing fever, abortion or premature labor occured in twenty-three. According to Schweden, the main cause of danger to the fœtus in continued fever is the hyperpyrexia, especially when the maternal temperature reaches 104° or upwards. The fevers do not appear to be aggravated as regards the mother; and the same observation has been made by Cazeaux with regard to this class of disease occurring after delivery.

Pneumonia seems to be specially dangerous, for of fifteen collected by Grisolle, eleven died—a mortality immensely greater than that of the disease in general. The larger proportion also aborted, the children being generally dead, and the fatal result is probably due, as in the severe continued fevers, to hyperpyrexia. The cause of the maternal mortality does not seem quite apparent, since the same danger does not appear to exist in severe bronchitis, or other inflammatory affections.

Phthisis.—Contrary to the usually received opinion, it appears certain that pregnancy has no retarding influence on co-existing phthisis, nor does the disease appear necessarily to advance with greater rapidity after delivery. Out of twenty-seven cases of phthisis, collected by Grisolle, twenty-four showed the first symptoms of the disease after pregnancy had commenced. It is tolerably certain that phthisical women are not apt to conceive—a fact which may probably be explained by the frequent co-existence, in such cases, of uterine disease, especially severe leucorrhœa. The entire duration of the phthisis seems to be shortened, as it averaged only nine and a half months in the twenty-seven cases collected—a fact which proves, at least, that pregnancy

has no material influence in arresting its progress. If we consider the tax on the vital powers which pregnancy naturally involves, we must admit that this view is more physiologically probable than the one generally received and apparently adopted without any due grounds.

Syphilis.—The important influence of syphilis on the ovum is considered elsewhere. As regards the mother, its effects are not different from those at other times. It need only, therefore, be said that, whenever indications of syphilis in a pregnant woman exist, the appropriate treatment should be at once instituted and carried on during her gestation, not only with the view of checking the progress of the disease, but in the hope of preventing or lessening the risk of abortion, or of the birth of an infected infant.

Epilepsy.—The influence of pregnancy on epilepsy does not appear to be as uniform as might perhaps be expected. In some cases the number and intensity of the fits have been lessened, in others the disease becomes aggravated. Some cases are even recorded in which epilepsy then appeared for the first time. On account of the resemblance between epilepsy and eclampsia, there is often a natural apprehension that a pregnant epileptic may suffer from convulsions during delivery. Fortunately, this is by no means necessarily the case, and labor often goes on satisfactorily without any attack.

Carcinoma.—The occurrence of pregnancy in a woman suffering from malignant disease of the uterus is by no means so rare as might be supposed and must naturally give rise to much anxiety as to the result. Should we be aware of the existence of the disease during gestation, the question will arise whether we should not attempt to lesson the risks of delivery by bringing on abortion or premature labor. The question is one which is by no means easy to settle. Here we have to deal with a disease which is certain to prove fatal to the mother before long, and one the progress of which is probably accelerated after labor while the manipulations necessary to induce delivery may very unfavorably influence the diseased structures. Again, by such a measure we necessarily sacrifice the child, while we are by no

means certain that we materially lessen the danger to the mother. The question cannot be settled except on a consideration of each particular case. If we have the opportunity of seeing the patient early in pregnancy, by inducing abortion we may save the mother the dangers of labor at term, possibly of the Cæsarean section, if the obstruction is great. Under such circumstances the operation would, no doubt, be justifiable. If the pregnancy has advanced beyond the sixth or seventh month, unless the amount of malignant deposit be very small indeed, it is probable that the risks of labor would be as great to the mother as at term, and it would then be advisable to give her the advantage of the few months' delay

Ovarian Tumor.—Cases are occasionally met with in which pregnancy occurs in women who are suffering from ovarian tumor, and their proper management has given rise to considerable discussion. There can be no doubt that cases of this kind left to nature are attended with very dangerous and often fatal consequences, for the abdomen cannot well accomodate at the same time the gravid uterus and the ovarian tumor, both increasing simultaneously. The result is that the tumor is subject to much contusion and pressure, which have sometimes led to the rupture of the cyst and the escape of its contents into the peritoneal cavity, at others to a low form of inflammation, attended with much exhaustion, the death of the patient supervening either before or shortly after delivery. The danger during delivery from the same cause, in the cases which go on to term, is also very great. Another source of danger is twisting of the pedicle, and consequent strangulation of the cyst, of which several instances are recorded. It is obvious, then, that the risks are so manifold that in every case it is advisable to consider whether they can be lessened by surgical treatment. The means at our disposal are either to induce labor prematurely, to treat the tumor by tapping, or to perform ovariotomy. The question has been particularly discussed by Spencer Wells in his works on "Ovariotomy," and by Barnes in his "Obstetric Operations." The former holds that the proper course to pursue is to tap the tumor when there is any chance of its being materially lessened

in size by that procedure, but that when it is multilocular, or when its contents are solid, ovariotomy should be performed at as early a period of pregnancy as possible. Barnes, on the other hand, maintains that the safer course is to imitate the means by which nature often meets this complication, and bring on premature labor without interfering with the tumor. He thinks that ovariotomy is out of the question, and that tapping may be insufficient and leave enough of the tumor seriously to interfere with labor. So far as recorded cases go, they unquestionably seem to show that tapping in itself during pregnancy is is not more dangerous than at other times, and that ovariotomy may be practiced during pregnancy with a fair amount of success. Wells records six cases which were surgically interfered with. In one tapping was performed, and in five ovariotomy; and all of these recovered, the pregnancy going on to term in four, the fifth being combined with the Cæsarean section. On the other hand, five cases were left alone, and either went to term, or spontaneous premature labor supervened; and of these three died. The cases are not sufficiently numerous to settle the question, but they certainly favor the view taken by Wells rather than by Barnes. It is to be observed that, unless we give up all hope of saving the child, and induce abortion at an early period, the risk of induced premature labor, when the pregnancy is sufficiently advanced to hope for a viable child, would almost be as great as that of labor at term; for the question of interference will only have to be considered with regard to large tumors, which would be nearly as much affected by the pressure of a gravid uterus at seven or eight months as by one at term. Small tumors generally escape attention, and are more apt to be impacted before the presenting part in delivery. The success of ovariotomy during pregnancy has certainly been great, and we have to bear in mind that the woman must necessarily be subjected to the risk of the operation sooner or later, so that we cannot judge of the case as one in which even a successful abortion terminates the risk. Even if the operation should put an end to the pregnancy—and there is at least a fair chance that it will not do so—there is no certainty that that would increase the

risk of the operation to the mother, while as regards the child we should only then have the same result as if we intentionally produced abortion. On the whole, then, it seems that the best chance to the mother, and certainly the best to the child, is to resort to the apparently heroic practice recommended by Wells. The determination must, however, be to some extent influenced by the skill and experience of the operator. If the medical attendant has not gained that experience which is so essential for a successful ovariotomist, the interests of the mother would be best consulted by the induction of abortion at as early a period as possible. One or other procedure, however, is essential; for, in spite of a few cases in which several successive pregnancies have occured in women who have had ovarian tumors, the risks are such as not to justify an expectant practice. Should rupture of the cyst occur, there can be no doubt that ovariotomy should at once be resorted to, with the view of removing the lacerated cyst and its extravasated contents.

Fibroid Tumors.—Pregnancy may occur in a uterus in which there are one or more fibroid tumors. If these are situated low down and in a position likely to obstruct the passage of the fœtus, they may very seriously complicate delivery. When they are situated in the fundus or body of the uterus, they may give rise to risk from hemorrhage, or from inflammation of their own structure. Inasmuch as they are structurally analogous to the uterine walls in which they are situated, they partake of the growth of the uterus during pregnancy, and frequently increase remarkably in size. Cazeaux says, "I have known them in several instances to acquire a size in three or four months which they would not have done in several years in the non-pregnant condition." Conversely, they share in the general involution of the uterus after delivery, and often lessen greatly in size, or even entirely disappear. Of this fact I have elsewhere recorded several curious examples; and many other instances of the complete diappearance of even large numbers have been described by authors whose accuracy of observation cannot be questioned. The *treatment* will vary with the position of the tumor. If it is such as to be certain to obstruct the passage of the child, abortion

should be induced as soon as possible, if the tumor is well out of the way, this is not so urgently called for. The principle danger then is that the tumor will impede the post-partum contraction of the uterus, and favor hemorrhage. Even if this should happen, the flooding could be controlled by the usual means, especially by the injection of the persulphate of iron. I have, however, seen several cases in which delivery has taken place under such circumstances without any untoward accident. The danger from inflammation and subsequent extrusion of the fibroid masses would probably be as great after abortion or premature labor as after delivery at term. It seems, therefore, to be the proper rule only to interfere when the tumors are likely to impede delivery, and in other cases to allow the pregnancy to go on, and be prepared to cope with any complications as they arise. The risks of pregnancy should be avoided in every case in which uterine fibroids of any size exist, the patients being advised to lead a celibate life.

THERAPEUTICS:

The remedies in the above enumerated complications of pregnancy are of course the same as in the unimpregnated condition and will not be enumerated here since they may be readily found in any work on practice or materia medica.

DISEASES OF THE FŒTUS AND MEMBRANES.—The fœtus may be affected by various diseases, either coincident with, or independent of, the mother.

Among the most frequent are the affections of the nervous system which give rise to hæmorrhages; or which consist primarily in inflammatory affections, from which spring secondary effects, attended with very serious results to the mother as well as to the child. Hæmorrhages into the substance of the fœtal brain are very rare; but it is not so much so in regard to discharges which take place behind the membranes or on the surface of the brain. These affections when observed, and when unconnected with obstructed delivery, have usually been found associated with placental apoplexy or obstruction of the cord. Of all the results of inflammatory action in this situation, the most familiar is

chronic hydrocephalus, in which the quantity of serum effused within the cranium is often so great as not only to cause a certain amount of atrophy of the encephalon, but also an increase in the size of the head, so considerable as to form a serious obstacle to delivery. Convulsions may attack the fœtus while it is yet in the womb, and cases have been observed in which convulsions on the part of the mother were communicated to the child. The probable cause of these, in most instances, is arrest of the circulation, which causes the fœtus to die of apnœa,—of which convulsive action is a frequent symptom. Although the lungs are as yet of very small size, it would appear that they are occasionally, though very rarely, the seat of inflammation; but pleurisy and tuberculosis are of much more frequent occurrence than pneumonia. Acute and chronic peritonitis, whether general or partial in extent, is met with much oftener than the above. This affection may be accompanied with effusions, which are identical in appearance and general characteristics with those which are so frequently observed after birth; and, according to the type of the inflammatory action, they may take the form, either of coagulable lymph, by means of which the viscera may be glued together, or of a fluid effusion, the quantity of which may become enormous, and may cause the death of the fœtus either before or after birth, or may even render delivery difficult. It would appear from certain researches made by Simpson in reference to this affection, that it is not unfrequently associated with syphilitic disease of the mother. Diseases of the liver and of the spleen, many of them associated with the same constitutional disorder, have also been frequently observed; and, more rarely, affections of the alimentary canal, with which may be classed cases of Ascarides and Tænia, these entozoa having been repeatedly found in the intestines of the unborn. Congestion, cystic degeneration, and other affections of the kidney, as well as various affections of the ureter, have occasionally been noticed; and the same may be said with reference to cardiac diseases, examples of which, including peri- and endocarditis, have also been noted. Various diseases of the skin are observed in children born either prematurely or at the full time, including

the characteristic eruption of certain febrile diseases, such as variola, which may be contracted from the mother within the uterus; or, what is much more wonderful, which may be communicated through the mother to the child, she herself remaining unaffected. I have seen two cases in which the child was born with all the evidence of having had an attack of variola, in one there being numerous characteristic pits, and the other was at birth passing through the stage of desquamation; neither of the mothers had the disease. Erythema, pemphigus, and other forms of skin disease, are very frequently to be received as evidence of the existence of syphilitic disease, in one parent or in both.

Fracture of the bones of the fœtus is an affection which is usually the result of violence from without; but a sufficient number of cases have been observed to establish the fact that, independently of any such accident, intra-uterine fracture may occur. Some of the recorded instances of this are of the most extraordinary nature. Chaussier, for example, tells us of one case in which there were forty-three, and another in which there were no fewer than one hundred and thirteen fractures of the bones of the fœtus, facts which are difficult to conceive, unless under the supposition that extensive disease of the bones existed. But, a more extraordinary phenomenon still is the occurrence within the womb of what has been described as spontaneous amputation. Haller, and many physiologists after him, supposed that these were cases of simple arrested development, but that this cannot be the case in every instance is proved by the discovery within the uterus of the missing part. The fact of this spontaneous amputation having, at a more advanced period, been clearly established by irrefragable evidence, the question which next presented itself for solution was the manner in which such a separation within the uterus could by any possibility take place. To this, the reply given by Chaussier, Billard, and other writers of that period, was that the only manner in which it could be accounted for was to suppose that the parts separated had been the seat of gangrene, and that spontaneous amputation had taken place at the line of demarcation between the living and dead

issue. The discovery in several cases of the amputated part, which had not undergone any decomposition, soon proved that this theory was quite erroneous, and it is to Montgomery that we owe what is now generally believed to be the correct explanation of what was long a pathological problem. Montgomery's view, which has, since he wrote, received the most ample confirmation, was that the intra-uterine section was effected, either by constriction exercised by the cord, or by special bands consisting originally of organized lymph, such as is usually elaborated under the influence of inflammatory action. These bands or threads having become fixed round a limb, their compresive power becomes daily augmented, on the one hand, by their own contractions, and, on the other, by the growth of the body within their grasp. In the majority of cases, the complete separation of the limb is not effected, and it is only partially divided. But if the processes of contraction and growth continue, the supply of blood to the distal part of the limb is first diminished and then cut off; and, ultimately, the nutrition of the bone being similarly interfered with, it becomes brittle, and probably breaks off short at the point of constriction,

Dropsy of the amnion may occur, in which case the uterus becomes immensely distended and producing similar symptoms to ascites, but an examination will clear up the matter by showing that the fluid is contained within the circumscribed walls of the womb instead of being diffused throughout the cavity of the abdomen.

Leishman says: "The distension from dropsy of the amnion is sometimes enormous, and may threaten death by apnœa, by interfering with the function of the lungs. The natural relief which has, in such cases, followed upon spontaneous rupture of the membranes and the escape of the fluid, points very clearly to the only method of treatment upon which we can rely; for, whatever may be the opinions entertained with reference to ascites, there can be no doubt that, in the affection we are now considering, the only operative procedure applicable to cases where life is in danger is the induction of premature labor by rupture of the membranes. If the symptoms are not urgent, and the

distension not excessive, careful attention to all the functions is the only mode of procedure which can be adopted, seeing that diuretics and purgatives are of no avail, and, besides, that the pregnancy may possibly come to a satisfactory termination. The result of this affection is very serious as regards the life of the child, but seldom implicates that of the mother, nor, inneed, as a general rule, does it seriously affect her health. The natural result is spontaneous premature expulsion."

Death of the Fœtus.—In certain cases, it may be very important to be able to tell whether the fœtus be really dead or not; we may be required to decide this question as medical jurists; but still more often it comes before us in operative midwifery, as, for instance, in cases of turning, forceps, or craniotomy. If the child were living, we should naturally shrink from attempting the latter operation where there was a chance of performing successfully either of the other two, even at the risk of a little injury to the mother: on the other hand, if the child were known to be dead, we should disregard it altogether, and resort to that which was easiest of performance, and therefore least dangerous to the mother.

Unfortunately, however, we cannot always determine with absolute certainty the question of fœtal life or death, though there are certain symptoms which are usually regarded as indicative of the latter condition: they may be classed under two heads—1, *Those occuring before;* and 2, *Those incidental to, labor.*

Among the symptoms of fœtal death which occur before labor sets in, may be reckoned the following, which are placed in the order of their relative value and frequency. First, the patient experiences a sensation of a dead, heavy weight in the lower port of the pelvis, as if the uterus had dropped; together with this there is a sort of damp coldness in the abdomen, accompanied by occasional rigors; there is absence of all fœtal auscultatory signs, either of movement or pulsation; the movements of the child are not felt by the mother; the abdomen becomes flaccid, and loses its firm, elastic, rounded feel; the uterus seems to roll from side to side with the position of the patient;

the abdomen also somewhat recedes, so that the umbilicus, which before protruded, is now retracted; if the fœtus be retained long after its death, the abdomen will notably diminish in size, the breasts will become flabby, and the secretion of milk will stop; occasionally there is a thick slimy fetid discharge from the vagina; and with all these symptoms the patient very often feels ill, languid and depressed; there is loss of appetite, nausea, and fetid breath; the eyes are sunken, and there is a dark rim around them, with other indications of constitutional disturbance; the latter sometimes occur to such an extent that the propriety of inducing premature labor may have to be considered.

Supposing labor to have begun, the signs of fœtal death on which we should chiefly depend for diagnosis have reference only to the child, and they are much more reliable than those of the non-parturient state. The information derived from the use of the stethoscope must, of course, take a foremost rank, provided the examination is made by an experienced and competent observer, though at the full time of gestation we can hardly fail to discover positive evidence from it. The other signs, except two, will vary according to the presentation. These two are: 1. The presence of meconium when the case is *not* a breech presentation; and 2. The escape of thick, slimy, and offensive liquor amnii. Neither of these, however, are very sure signs, nor would their absence be evidence of vitality.

In *head* presentations, if the child be dead, no *caput succedaneum* is formed, as this is always an indication of life, and can only happen where the circulation is going on; it being simply œdema of the scalp consequent on long-continued pressure and arrested circulation. In place of it, the scalp is felt to be flabby and soft, the bones are looser, more movable, and overlap one another more than usual, "their edges feel sharp, as if no longer covered by the scalp, and frequently communicate a grating sensation when rest against each other." The *caput succedaneum*, when it appears, is more marked in lingering labors, and hence is more frequent in primiparæ; in quick labors it may not appear at all, there being but little compression, and the circula-

tion therefore is not obstructed sufficiently long to cause this dropsical effusion into the cellular tissue.

In *nates presentations* the sphincter ani in a dead child is relaxed and without the power of contraction; in a living child, the reverse obtains.

If the *face presents*, the lips and tongue are felt to be flabby and motionless in the one case; firm, full, and occasionally moving in the other.

In *arm presentations*, if the child be alive, the arm will often swell and turn black, it will retain its proper temperature, and sometimes moves; if dead on the contrary, there is no swelling, no lividity, no movement, and no warmth. If death has taken place some time previously, the epidermis will be found to drop off.

In *funis cases*, if child be alive, the cord will be felt firm, turgid, and pulsating; on the other hand, if he be dead, the cord will be found flaccid, empty, and pulseless.

CHAPTER VI.

ECLAMPSIA.

Convulsions are liable to attack a pregnant woman at any time during gestation and may also occur during labor or after delivery. Various causes have been assigned as productive of these convulsions, among others, albuminuria, uræmia, hyperæmia, toxæmia, etc. In all probability, however, these conditions are simply concomitant symptoms, and it is more probable that the convulsions result indirectly from nervous irritation and the secondary effects of pressure. I know one subject who, when constipated, is invariably attacked by convulsions exactly similar to puerperal. Plethoric or nervous women are most frequently attacked, but women of other habits are not exempt. Primiparæ are more liable than multiparæ. Convulsions occurring during the puerperal state have, by most authors, been divided into epileptiform, apoplectic and hysterical. This division is, however, arbitrary, for although any of the three varieties of convulsions may exist; the disease under consideration is suigeneris and differs entirely from either of the forms mentioned.

Of all diseases the physician is called upon to treat, this is one of the most appalling. On entrance to the patient's chamber one finds the friends and attendants so completely over come with fear and consternation as not to be able to render the slightest assistance or even to answer questions lucidly. In fact a general panic exists, and indeed, it is not to be wondered at, for the young practitioner himself is not unfrequently very much terrified at the formidable symptoms that are exhibited; the violent convulsive contortions of the whole body, the glaring eyes, the firmly set jaws often closing upon the tongue, producing hemorrhage, which together with the froth and foam issuing from between the teeth, the distorted physiognomy and great muscular strength, requiring sometimes three or four persons to

prevent the patient from injuring herself, all tend to produce an aspect before which the inexperienced may well be expected to quail.

Symptoms.—The attack is generally sudden in its onset, and in its character is precisely that of a severe epileptic fit, or of the convulsions in children. Close observations shows that there is at first a short period of tonic spasm, affecting the entire muscular system. This is almost immediately followed by violent clonic contraction, generally commencing in the muscles of the face, which twitch violently; the expression is horribly altered; the globes of the eyes are turned up under the eyelids so as to leave only the white sclerotics visible, there is an incessant winking, and the angles of the mouth are retracted and fixed in a convulsive grin. The tongue is at the same time protruded forcibly, and if care is not taken, is apt to be lacerated by the violent grinding of the teeth. The face, at first pale, soon becomes livid and cyanosed, while the veins of the neck are distended,and the carotids beat vigorously. Frothy saliva collects about the mouth, and the whole appearance is so changed as to render the patient quite unrecognizable. The convulsive movements soon attack the muscles of the body. The hands and arms, are at first rigidly fixed, with the thumbs clenched into the palms, also begin to jerk, and the whole muscular system is thrown into rapidly-recurring spasms. It is evident that the involuntary muscles are implicated in the convulsive action, as well as the voluntary. This is shown by a temporary arrest of respiration at the commencement of the attack, followed by irregular and hurried respiratory movements producing a peculiar hissing sound. The occasional involuntary expulsion of urine and fæces indicates the same fact. During the attack the patient is absolutely unconscious, sensibility totally suspended,and she has afterwards no recollection of what has taken place. Fortunately, the convulsion is not of long duration, and, at the outside, does not last more than three or four minutes, generally not so long. In most cases, however, after an interval, there is a recurrence of the convulsion, characterized by the same phenomena, and these paroxysms are repeated

with more or less force and frequency according to the severity of the attack. Sometimes several hours may elapse before a second convulsion comes on; at others the attacks may recur very often, with only a few minutes between them. In the slighter forms of eclampsia there may not be more than 2 or 3 paroxysms in all; in the more serious as many as 50 or 60 have been recorded.

After the first attack the patient generally soon recovers her consciousness, being somewhat dazed and somnolent, with no clear perception of what has occurred. If the paroxysms be frequently repeated, more or less profound coma continues in the intervals between them, which, no doubt, depends upon intense cerebral congestion, resulting from the interference with the circulation in the great veins of the neck, produced by spasmodic contraction of the muscles. The coma is rarely complete, the patient showing signs of sensibility when irritated, and groaning during the uterine contractions. In the worst class of cases, the torpor may become intense and continuous and in this state the patient may die. When the convulsions have entirely stopped, and the patient has completely regained her consciousness, and is apparently convalescent, recollection of what has taken place during, and some time before, the attack, may be entirely lost, and this condition may last for a considerable time.

If the convulsions come on during pregnancy, we may look upon the advent of labor as almost a certainty; and, if we consider the severe nervous shock and general disturbance, this is the result we might reasonably anticipate. If they occur, as is not uncommon, for the first during labor, the pains generally continue with increased force and frequency, since the uterus partakes of the convulsive action, as well as the other muscles of the body. It has not rarely happened that the pains have gone on with such intensity that the child has been born quite unexpectedly, while the attention of the practitioner has been taken up with the patient. In many cases the advent of fresh paroxysms is associated with the commencement of a pain, the irritation of which seems sufficient to bring on the convulsion.

THERAPEUTICS:

Aconite., hot dry skin; great thirst; restlessness; fear of death; more or less cerebral congestion.

Argent. nitr., spasms preceded by a sensation of general expansion, mostly of face and head; sometimes just after an attack she lies quiet, but before another she becomes very restless.

Bellad., appears as if stunned; semi-conscious and loss of speech; convulsive movements in limbs and muscles of face; paralysis of right side of tongue, foam at the mouth; renewal of fits at every pain.

Cantharis, convulsions, with dysuria and hydrophobic symptoms; bright light, drink or sound of falling water, touching the larynx, or painful parts, cause or renew the spasms.

Chamom., Convulsions after anger; or has one red cheek, the other pale; great impatience and disposition to anger; irritable impatient mood.

Cicuta., convulsions, with frightful distortions of the limbs and whole body with blue face and frequent interuptions of breathing for a few moments.

Coccul., spasms following difficult labor, and those brought on by changing the position of the patient.

Cuprum, spasms during parturition with violent vomiting; or with every paroxysm, opisthotonos, spreading out the limbs and opening the mouth. Clonic spasms during pregnancy, when the attack commences in one part, as in the fingers, or a limb, and gradually spreads.

Gelsem., spasms preceded by great lassitude, dull feeling in the forehead and vertex, fulness in the region of the medulla; head feels "big;" heavy, with half stupid look; face deep red; speech thick; pulse slow, full, from protracted difficult labor; rigid os uteri; albuminuria.

Glonoin, eclampsia; unconscious; face bright red, puffed; pulse full, hard; urine copious and albuminous.

Hyosciamus, puerperal spasms, shrieks, anguish, chest oppressed, unconscious; bluish color of face; twitching and jactitation of every muscle in the body. Almost constant delirium.

Ignat., puerperal convulsions commence and terminate with groaning and stretching of the limbs. Deep sighing and sobbing, with a strange compressed feeling in the brain.

Ipec., convulsions characterized by continuous "nausea."

Kali c., spasms seem to pass off with frequent eructations.

Nux mosch., eclampsia; head jerked forward; especially hysterical women, who easily faint and suffer from great languor in back and knees; drowsy before and after spasms.

Opium, spasms, with loss of consciousness and drowsiness; open mouth. After attack, deep sleep with stertorous respiration; face remains deep red and hot; stupor between spasms.

Pulsat., convulsions following sluggish or irregular labor-pains; unconscious; cold, clammy, pale face; stertorous breathing and full pulse.

Secale cor., puerperal convulsions, with opisthotonos. Indicated more particularly in scrawny, ill-nourished women, with too feeble labor-pains.

Stram., convulsions, especially opisthotonus, from bright dazzling objects, water or touch. Awakens with a shrinking look, as if afraid of the first object seen; convulsions with copious sweating; puffed and red face; loss of consciousness and sensibility.

Veratr. alb., eclampsia; pallor, colapse, anæmia, or violent cerebral congestion, with bluish bloated face; wild shrieks, tearing their clothing.

Veratr. vir., convulsions during labor, after blood letting; furious delirium; arterial excitement; cold clammy sweat.

Zincum, particularly if eruptions have recently disappeared, even old eruptions; twitchings in various muscles.

Accessory treatment consists in the inhalation of chloroform or ether or a mixture of both to the extent of controlling the convulsions, the anæsthesia may be kept up at intervals if necessary, for several hours or days. Hydrate of Chloral in fifteen or twenty grain doses, in a suitable menstruum as syrup or water, given after each convulsion will almost invariably control temporally the difficulty. Bromide of Potassium in the same dose as the chloral will also be found useful especially to ward off a recurrence of the attacks, for which purpose it may be given two or three times per day. Finally, while as a rule narcotics are not called for, I have seen, when all other means failed, splendid results from hypodermic injection of morphia and atrophia in combin-

ation, in doses of one-eighth of a grain of the former to one ninety-sixth of a grain of the latter.

The induction of premature labor or accelerating labor when it has already set in is sometimes the only means of obtaining permanent relief. Neither should, however, be resorted to except as a *dernier ressort* and then in the most gentle manner. The two following cases were reported by myself in the American Observer some years since, and will give the reader an idea as to when it is advisable to act:

A short time since I was called to see Mrs. Q., a stout florid woman aged 20, who was supposed to be about eight and a half months advanced in pregnancy; in the morning at five o'clock she was attacked by convulsions, accompanied by profuse vomiting, which vomiting, by the way had been prevalent during her entire period of utero-gestation, and not as is usually the case confined to the earlier stages. The convulsions, exceedingly violent in their nature, occurred every twenty-five or thirty minutes, with a lucid interval between the paroxysms, pulse only slightly accelerated, skin moist, os-uteri on examination found rigid and not the slightest dilatation. Prescribed Belladonna, ten drops of the third dec. dil., in four tablespoonfuls of water, a teaspoonful to be given every fifteen minutes, applied pounded ice to the head, went to see other patients, promising to return in three or four hours which I did and found no change except a slight dilatation of os-uteri; went to dinner and on returning two hours later, found on examination os relaxed and dilated completely; with head in the cavity of the pelvis. After waiting sometime, and not being able to bring about contraction strong enough to expel the child, and the convulsions getting constantly worse, I proceeded to deliver by means of the forceps and succeeded in bringing to the world a fine living boy, the convulsions gradually ceased, the woman rallied splendidly and in a few hours regained consciousness, which remained without any further convulsions. Unfortunately on the fourth day she was attacked by puerperal fever, to which she succumbed as an easy prey.

On May 3d, at 1 o'clock P. M., was called to see Mrs. T.,

aged twenty-one, mother of one child about two years old. She has always enjoyed excellent health, never having had epilepsy or convulsions of any kind: is at present about six months advanced in pregnancy. Was attacked by convulsions about noon, and had sent for an old school doctor, who had prescribed for her without beneficial results: convulsions are violent, five or six succeeding each others with an unconscious interval of five or six minutes, each paroxysm lasting about ten minutes, then an interval of an hour during which she partly regained consciousness. Gave Belladonna, 3d, every fifteen minutes, also Hydrate chloral, five grains every hour.

Thursday 4th, no change except that convulsions are lighter while under the influence of chloral.

Friday 5th, no change.

Saturday 6th, same.

Sunday 7th, same, have exhausted all remedies indicated without slightest benefit, and on consultation with three brother practitioners, two of whom oppose and one favor it; I, as a *dernier ressort*, the woman being entirely fagged out, and sinking rapidly, proceeded to the induction of premature labor which was completed on Monday morning the 8th, at 3 o'clock. After which she did not have another convulsion, and made a speedy recovery.

CHAPTER VII.

ABORTION AND HÆMORRHAGE.

Abortion.—By abortion or miscarriage is meant an expulsion, accidental or otherwise, of the ovum before it has arrived at a sufficient stage of development to permit it to exist after birth; this period has been placed at various dates between the sixth and seventh months, but to avoid confusion it is perhaps better, notwithstanding several cases are on record in which births at six months have resulted in life to the child, to consider seven months as the time at which the embryo may, if expelled, live; any expulsion between this time and term, that is the ninth month, may be designated a premature labor.

It has been the custom among authors on obstetrics to classify all expulsions of the ovum before the fourth month, abortion, between that and the seventh, miscarriage, and after seven and before nine months, premature labor, why this classification has been adhered to I am at a loss to understand, the more so as it is of no practical utility, but the division above given enables us to consider the subject to a far greater advantage.

Abortion occurring before the third month, is usually designated as ovular, because the ovum is generally expelled whole; that occurring after the third month is known as placental.

Causes.—The causes of abortion are maternal and embryonic. The maternal causes are retroversion, anteversion, adhesions, fibrous tumors, polypus, cancer, cauliflower excrescence, corroding ulcer, placenta prævia, ulcerations of the cervix in various forms, endo-metritis and dysmenorrhœa.

Syphilis—Tuberculous disease (phthisical women are peculiarly susceptible of impregnation), variola and other acute diseases. Uræmia, miasmatic residence, scorbutic diathesis. Tight-lacing, and analogously, abdominal tumors. Protracted lacta-

tion; women advanced in life with the first pregnancy are said often to be the subjects of abortion. Cystitis, diarrhœa, dysentery, ascarides, constipation, piles, strangury, etc.

Mechanical Causes.—Coitus, plugging the vagina for hemorrhage, puncturing the membranes, violent exercise, as horseback riding, jolting over rough roads, carrying heavy weights, blows, falls, sudden efforts, vomiting, dancing. The strong compression in convulsions, hysteria, or epilepsy and operations.

Certain Medicines.—Emetics, cathartics, emmenagogues, etc.

Emotional Causes.—Terror, fright, grief, etc.

Sometimes abortion seems epidemic.

The embryonic causes are hydrocephalus, pleuritis, peritonitis, variola even without affecting the mother. Syphilis, convulsions and intermittent fever said to occur in utero, plurality of ova, placentitis, placentary congestion, fatty placenta, rupture of umbilical vein—diseases of chorion, of cord, death of the fœtus.

It is easy to understand why death of the fœtus gives rise to expulsion, a foreign body always excites contraction. But considerable time may elapse between death and expulsion.

Symptoms and Treatment.—The symptoms of abortion are hæmorrhage and pain co-existant, or either may occur independent of the other; these symptoms generally make their appearance at about the time for the recurrence of the menstrual period many cases of abortion, thus occurring without being noticeable. Barnes says: "There is reason to apprehend abortion if, after a woman has missed one or more monthly periods, she complains, about a menstrual epoch, of unusual heavy, aching lumbar pains, followed by spasmodic or colicky pains in the lower abdomen and pelvis; and still more if a discharge of blood takes place. But these symptoms may pass away under rest, and the pregnancy go on. When this occurs, we may infer that there is no disease of the fœtus or its membranes incompatible with its life; and that the symptoms are due to the recurrence of the ovarian stimulus which is the physiological cause of menstruation.

The congestion attending the menstrual nisus may be the

cause of extravasations of blood into the decidua and between the villi. There, coagulating and hardening, through the absorbtion of the watery part of the blood, it may help to form a solid mass, which may retain connection with the uterus for some time longer, and be eventually expelled as a *fleshy mole*. No trace of an embryo may be discovered; but a careful microscopical examination will reveal the elementary constituents of the ovum, especially chorion-villi.

If things are going on to abortion, the hæmorrhage will continue, perhaps in great abundance; pains of a forcing or expulsive character persist, until, among the discharges, the embryo, enclosed or not in the amnion and chorion and decidua, is found.

In early abortions, occurring at from six weeks to two months, the embryo will often pass enveloped in the chorion. The decidua, or mucous membrane of the uterus, may persist for some time longer; and, so long as it remains, the hæmorrhage and pain, and the danger of the patient, last.

In abortions occurring at three or four months, the embryo is sometimes expelled alone in the first instance, the ovum being burst under the contractions of the uterus. Then the membranes, amnion, chorion, decidua, and placenta, follow. But it may happen that the ovum is not burst, and then the whole ovum will come away in one mass. This is more likely to be the case when the embryo has perished some time before its expulsion, and when the process of retrogression of the media between the uterus and placenta has made some progress. Diseased ova are the most liable to be thrown off in this entire form. But, if the abortion be the result of hydatiginous degeneration of the chorion, it is extremely likely that only a part of the diseased structure will come at a time. Then hæmorrhage will still continue. You must carefully examine what has passed, to see if there is any appearance of parts being torn off, giving reason to infer that more remains behind. You must also, in every case, examine *per vaginam*, to ascertain if there is any thing in the uterus.

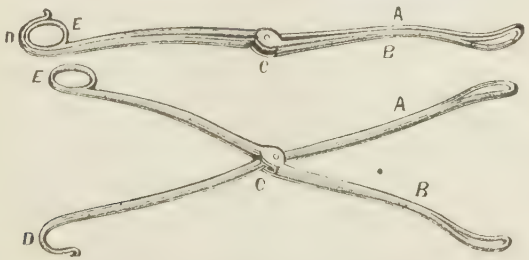
The first question of a practical nature is, *Can the abortion be averted?* Can gestation continue?

If you have found any portion of the embryo or membranes in the matters expelled, you must give up the hope of this.

If you find very active expulsive pains, attended with free hæmorrhage, affecting the patient's strength, and if the os uteri is opening so as to admit the finger freely, you may, even if no portion of the ovum has been expelled, give up the hope of averting abortion.

The sooner the ovum, or the remains of it, are voided, the sooner the patient will be out of danger. This, then, is the first indication: *Empty the uterus.* How? Sometimes you will feel the ovum projecting partly through the os. It feels like a polypus. In this it is probably detached, and, under proper manipulation, it will come away. The method of proceeding is as follows: The patient lying on her back or on her side, with the thighs flexed so as to relax the abdominal walls, you press with the palm of one hand above the symphysis upon the fundus of the uterus, so as to depress the organ well into the pelvic cavity. By this manœuvre you carry the os lower down, making it more accessible to the finger passed internally, and you support the organ by providing counter-pressure. This singularly facilitates the penetration of the cavity by the finger, which must generally pass the fundus, in order to get hold of the ovum and scoop it out. Generally the uterus, in abortion, is low in the

Fig. 17.

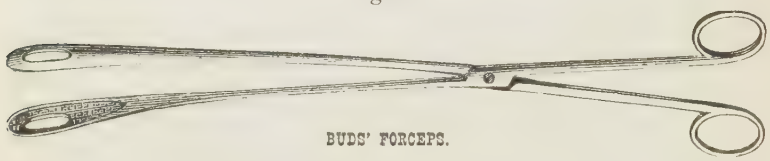


THE LOOMIS' PLACENTA AND OVUM FORCEPS.

Fig. 17 represents the instrument as closed and opened, the two blades A and B closely fitting together. In this position, the instrument is not more than a half inch in width, and a third in thickness, and can easily pass the partially dilated os uteri. The blade A has the power of rotation, as well as opening, at the joint C, so that, when in the closed state, it has entered the cavity of the uterus, by slightly opening and rotating the movable blade, the curved portion of the blade passes along in close contact with the internal surface of the uterus, detaching the placenta or ovum, and, on compressing the handles, holds it firmly, so that it may be withdrawn with the instrument. The practical use of this instrument has fully proved its great value.

pelvis; and, the vagina being relaxed, it is not difficult to reach the os; but not seldom, although the os can be reached, it may be necessary, in order to command the uterus and its contents, to pass the hand into the vagina. This is a very painful proceeding, and calls for chloroform. This is more especially the case if the ovum adheres; then the finger must be swept well round the cavity of the uterus—even at the fundus. The decidua may thus be broken up, and only pieces will come at a time. The Loomis' ovum forceps often will serve to effect the above results when the hand of the operator fails. Other forceps have been invented but the Loomis' and Buds' are about the only ones of any practical value.

Fig. 18.



BUDS' FORCEPS.

I have said that there is no security against return of hæmorrhage while the ovum or a portion remains behind. But there is an exception to this rule. I have frequently observed in cases where it was not possible to bring away the whole ovum, that the remains, if much broken up, did no harm, and that the hæmorrhage ceased. The *debris* gradually becomes disintegrated; and involution goes on unimpeded.

Sometimes a portion of decidua and placenta adheres so intimately that it cannot be removed by the fingers. Projecting into the uterine cavity, it forms the *placental polypus*. If hæmorrhage continue, this may be removed by the wire ecraseur, which will shave it off smoothly from the surface of the uterus. I believe this is the best and safest way of dealing with these masses. There is another condition to be considered here. Sometimes, blood collecting in the cavity of the uterus gets compressed, so that, the fluid portion being squeezed out, the fibrin forms a firm body, which may adhere to the wall of the uterus. This is the *blood-polypus*. Just like an ovum or bit of decidua, it is a cause of hæmorrhage by irritating the uterus, inducing spasm or colic. It can commonly be scooped out by the finger.

Sometimes it becomes necessary to dilate the cervix to effect complete evacuation of the uterine contents, this is best done by a sponge tent, Barnes' or Molesworth's dilator, which, at the same time that it dilates, arrests hæmorrhage and excites contraction. After the uterus has been entirely evacuated and should the bleeding continue, cold water should be applied to the abdomen and vulva or pieces of ice in the vagina or womb, also kneading the uterus through the walls of the abdomen to bring about contraction; failing by these means, an injection into the uterus of a solution of per sulphate of iron, say an ounce to a pint of cold water, may be resorted to. The injection should be made through a Molesworth's syringe, or, if not accessible, an ordinary elastic male catheter should be used, taking care to have it inserted far enough to reach the fundus before the fluid is injected, otherwise the solution would not come in contact with all the internal surface of the uterus; the injection should be made very slowly in order not to be forced into the Fallopian tubes.

Placenta Prævia.—There is, in the whole range of obstetrical practice, no complication that gives rise to graver results or requires more skill and coolness on the part of the accoucheur than placenta prævia, which may be defined as an insertion partial or complete of the placenta over the os and cervix uteri. This unusual insertion is dependant on the ovum in the earlier stages of its development finding its way to the lower portion of the uterus before it becomes fixed or develops its uterine attachments.

The placenta may be inserted in the upper half of the uterus with perfect safety, but when it is attached to any portion of the lower half there is liability to hæmorrhage, and of course the situation of attachment nearer the cervix or os the greater the danger.

Symptoms.—Owing to the fact that the cervix does not become distended till toward the latter end of pregnancy, it is not generally till after six months of gestation have elapsed, that any indications of placenta prævia are observed. The first symptoms are ordinarily painless discharges of blood at intervals of

a few hours, or sometimes days, after a time, as the gradual distention of the cervix goes on, there will be sharp pains accompanying or preceding the discharge.

On examination the os uteri is often found scarcely, if at all, dilated more than is usual in pluriparæ—and it is in pluriparæ that placenta prævia most frequently occurs—if examination is made early during the flooding; but the cervix or vaginal portion is commonly thicker than ordinary. The finger passed into the os will miss the head or other presenting part of the child, especially if the case be one of placenta centralis. In this case, also, ballottement will be difficult, or not made out; but, instead, you may feel the quaggy, spongy placenta, or a blood-clot. The cervix is generally more tender to the touch, and pain is often felt during gestation at the lower segment, and on the side to which the placenta grows. Levret says, the uterus, instead of being rounded or pointed, is flattened, as if divided into two parts, as in twin pregnancy, but the division is more on one side, causing oblique irregularity of form; and in the first months the patient has been conscious of a swelling, with pain and hardness, in one side. Gendrin says, a pulsation, not synchronous with the mother's pulse, may be felt at the os uteri.

The immediate danger to life from shock and loss of blood is serious, if the hæmorrhage is profuse, if the cervix remain unexpanded, and if delivery and contraction of the uterus be not secured within a short time. Whenever the loss is rapid and great, and the patient is clearly affected by the loss of blood, the indication is strong to abandon at once the prospect of postponing labor, and to proceed immediately to accelerate delivery.

The ultimate dangers, supposing immediate sinking from hæmorrhage is cleared, arise from anæmia. The secondary effects from hæmorrhage are: malnutrition, nervous disorders; the local injury to the cervix uteri during labor, the contusion, laceration, dispose to inflammation, and blood-infection from the necrosis of tissue about the mouths of the utero-placental vessels; phlegmasia dolens is not uncommon, and is sometimes of very severe, even fatal type, being complicated with more than

the usual degree of blood-infection; all the other forms of puerperal fever are more common after placenta prævia; secondary hæmorrhage from laceration of the cervix; and, lastly, there is the prospect of imperfect involution of the uterus, and of chronic endocervicitis.

Will the case go on to delivery? If the hæmorrhage is moderate, if the os does not dilate, if there is little or no sign of uterine action, there is the probability of the utero-placental relations being so little disturbed that the pregnancy may go on. But this question is often practically settled by the physician, who, governed by his estimate of the strength of the patient, the stage of pregnancy, and the urgency, absolute and relative, of the symptoms, may resolve to accelerate the labor. If the pregnancy has advanced beyond the seventh month, it will, as a general rule, be wise to proceed to delivery, for the next hæmorrhage may be fatal; we cannot foretell the time or the extent of its occurrence, and, when it occurs, all, perhaps, that we shall have the opportunity of doing will be, to regret that we did not act when we had the chance.

Treatment.—The first question we have seen, is to decide whether the pregnancy can be allowed to go on. If the pregnancy is only of five or six months, the os not dilated, all pain absent, and the hæmorrhage very moderate, we may temporize, watching, however, most vigilantly. But, if the hæmorrhage be at all profuse, and there be any sign of uterine action, no matter what the stage of pregnancy, act at once; accelerate the labor. Above all, do not trust to the weak conventional means of keeping the patient in the recumbent posture, in a cool room, with cold cloths to the vulva, mineral acids, acetate of lead, etc. This is but trifling in the presence of a great emergency. Commonly, they do no good whatever; always, they lose precious time.

The great hœmostatic agent is contraction of the uterine fibre. To obtain contraction is, therefore, the end to be sought. Although the powers of the system may still be good, the uterus will not always act well, especially in premature labor, while it is fully distended. To evoke contractile energy, it is often enough to puncture the membranes. This done, some liquor amnii runs

off; the uterus, collapsing, is excited to contract, and, being diminished in bulk, it acts at advantage. Labor being active, the cervix expands promptly, the placenta gets detached from the orificial zone, the bared uterine vessels get compressed by the retracting tissue and by the pressure of the advancing head; the hæmorrhage ceases spontaneously.

The puncture of the membranes is the first thing to be done in all cases of flooding sufficient to cause anxiety before labor. *It is the most generally efficacious remedy, and it can always be applied.* The patient lying on her side, a finger is passed up into the os uteri, guiding a stilet, quill-pen, or porcupine's quill, to the membranes, while the uterus is supported externally.

At the same time *apply a firm binder over the uterus.* This further promotes contraction: and, by propelling the child toward the os uteri, it accelerates the expansion of the os and moderates the hæmorrhage.

Puncture of the membrane is, in many cases, enough of itself. But, if the hæmorrhage continues, and especially if the patient shows signs of exhaustion, the os uteri being undilated, the tampon may be tried. The best plan is to tampon the os uteri itself with a sponge-tent. This will expand the os, and prepare for further proceedings. The various forms of vaginal tampons such as the silk handkerchief, tow, lint, even Braun's colpeurynter, are treacherous aids, requiring the most vigilant watching do not go to sleep in the false security that, because you have tightly packed the vagina, the bleeding will cease. The tampon you have introduced with so much pain to the patient soon becomes compressed, blood flows past it, or accumulates around and above it, and the tide of life ebbs away unsuspected. Never leave a patient more than an hour, trusting to the tampon. Feel her pulse frequently; watch her face attentively; examine to see if any blood is oozing. Remove the tampon in an hour, and feel if the os uteri is dilating. If it be dilating, and the hæmorrhage has stopped, you may trust nature a little further, watching her closely. The labor may now go on spontaneously, probably issuing in the birth of a living child.

You must not, however, be surprised to find that the hæmorrhage continues, that the os uteri does not expand, and that there is no active labor. Expectancy has its limits; the time has come for more decided measures.

The first difficulty is to *effect the dilatation of the cervix.* Under any process, this must take a little time. Can any thing be done in the mean time to moderate the bleeding?

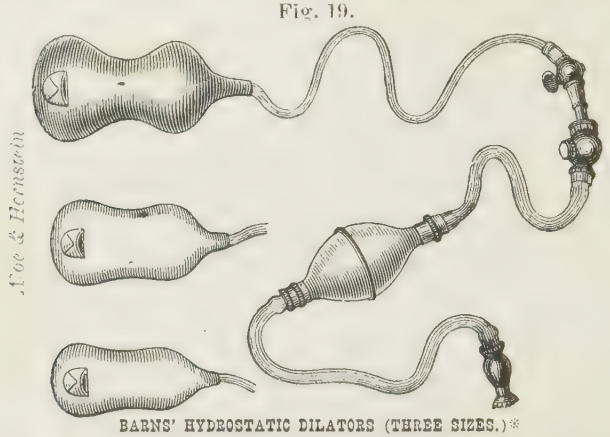
Something very effectual may be done. Pass one or two fingers as far as they will go through the os uteri, the hand being passed into the vagina, if necessary; feeling the placenta, insinuate the finger between it and the uterine wall; sweep the finger round in a circle, so as to separate the placenta as far as the finger can reach; if you feel the edge of the placenta where the membranes begin, tear open the membranes freely, especially if these have not been previously ruptured; ascertain if you can, what is the presentation of the child, before withdrawing your hand. Commonly, some amount of retraction of the cervix takes place after this operation, and *often the hæmorrhage ceases.* You have gained time. You have given the patient the precious opportunity of rallying from the shock of previous loss and of gathering up strength for further proceedings.

If, the cervix being now liberated, under the pressure of a firm binder, ergot, or stimulants, uterine action return so as to drive down the head, it is pretty certain there will be no more hæmorrhage; you may leave nature to expand the cervix and to complete the delivery. The labor, freed from the placental complication, has become natural.

If, on the other hand, the uterus continues inert, the hæmorrhage may not stop; and you must proceed to the next step, *the artificial dilatation of the cervix.* This is accomplished by the use of hydrostatic dilators. Insert the middle or largest-sized bag into the os; distend with water gently and gradually feeling the effect of the eccentric strain upon the edge of the os. When the bag is fully distended, keep it *in situ* for half an hour or an hour if necessary. During this time the hæmorrhage is commonly suspended; probably the intra-uterine portion of the bag presses upon the mouths of the bared vessels; certainly

retraction of the cervix goes on, which is the direct means of

Fig. 19.



BARNS' HYDROSTATIC DILATORS (THREE SIZES.)*

closing these vessels; and under the combined effect of pressure from below by the dilator, and from above by the binder, the contents of the uterus are kept in close contact with its inner surface, thus keeping pressure on the vessels of the cervix, and stimulating the entire organ to contract. When this object is accomplished, and you find the cervix freely open, you may withdraw the bag.

Again, you may wait and observe if nature is able to carry on the work. If contraction persists, if the head presents, the labor is henceforth essentially normal, and may be allowed to go on spontaneously. You must, nevertheless, watch attentively.

If contraction is efficient, if hæmorrhage goes on, if another part than the head is presenting—a condition very frequent in placenta prævia—we must carry our help further. We must do what nature connot do—we must deliver. This is done by seizing the child's leg and extracting. Now, this can almost always be accomplished without passing the hand into the uterus. The by-polar method of turning here finds one of its most valuable applications. It avoids the danger and difficulty of forcing your hand through an imperfectly-expanded os, through imperfectly-developed and abnormally-vascular structures. Having seized a leg, it must be drawn down gently, so as to bring the

*Dr. W. Molesworth, of New York City, has made a decided improvement upon these elastic bags in what he terms his "climax dilator," which is more convenient; can be employed with greater facility; does not increase in length, but dilates uniformly from side to side; can be used with either air or warm water, the latter being preferable; and the degree of dilatation of which can at all times be determined by the amount of water employed. (See Cut on another page.)

half-breech into the cervix. Traction must be so regulated as to bring the trunk through with the least amount of force necessary for the purpose. While delivery is going on, the hæmorrhage is generally arrested. Rapid extraction involves a certain amount of violence and shock. Gentle extraction, giving the cervix time to dilate gradually, avoids the mischief. In case the head is presenting, the forceps should be applied and delivery effected as in ordinary forcep cases.

In those rare cases where the placenta is inserted directly over the os centre for centre, or when on detaching the placenta as far as you can reach you do not come to the margin, the best thing to do is, make a hole by tearing directly through the placenta, large enough to permit the passage of the child. Simpson, however, advises that the placenta should be entirely detached and delivered before the child.

As soon as the child is born, readjust the pressure upon the uterus; and, if there is no hæmorrhage, allow three or four minutes for the system to rally, before attempting to remove the placenta. If hæmorrhage occurs, and the placenta does not come, on moderate traction, you must pass the hand into the uterus and detach it.

Accidental Hæmorrhage.—Antepartum hæmorrhage, not connected with abortion or placenta prævia, is designated as accidental. Accidental hæmorrhage is dependant on partial separation of the placenta from its uterine attachments, caused by accidents, as falls, blows, lifting, etc.; it also occurs in women who have borne many children as the result of an overtaxed condition of the uterine walls which become flabby and do not possess vitality enough to keep up the placental attachments; also from short umbilical cord or the coiling of the cord around the fœtus, as the following case will illustrate:

On the evening of August 8th, 1873, at about 8 o'clock, I was called to see Mrs. D———, a stout, florid English woman, whom I found in labor, it being, as I was informed, her sixth accouchement, all the previous recurrences of labor having been natural. She had felt slight pains since about 4 or 5 o'clock

of the preceding morning, making about sixteen hours since first appearance, but they had become severe and assumed the bearing down type only within the last hour or two.

On examination, I found the head engaged in the superior strait, the os largely dilated, the membranes ruptured, the presentation natural, i. e., vertex; the pains were now coming on very strong every four or five minutes, and during each contraction of the uterus a large quantity of fresh, unclotted blood was poured out; this was a matter of considerable mystery and annoyance to me, for the reason that I could discover the existence of no such complication as placenta-prævia, and the hæmorrhage occurring only during the period of pains that forced the labor, or in other words, pushed the child further into the pelvic cavity.

After witnessing three or four pains, and becoming alarmed through fear that the woman might lose her life from the profuse hæmorrhage, I proceeded to apply and lock the forceps, which with some delay I finally succeeded in doing; waiting for the pain, I made traction and succeeded in delivering the head. The blood now gushed out continuously in fearfully large quantities, and as hastily as possible I forcibly extracted the body, the placenta coming away with the shoulders. By means of kneading the abdomen and cold applications I soon had the satisfaction of seeing the hæmorrhage cease, and the woman rally from the fainting condition in which for several minutes she had been.

On turning our attention to the child it was found to be dead and had the funis coiled *five times* around the neck, there being not more than four inches between the last coil and the placental attachment—all attempts at resuscitation were without avail, but we had the satisfaction of a lucid explanation as to the cause of the profuse hæmorrhage, which was in this way: every pain, the cord being taut, that advanced the child in the least, tore the placenta from its uterine attachments, the blood naturally poured out of the uterine orifice of the severed vessels.

This is a case I believe, that has no parallel on record, and one that teaches us that in all cases, where hæmorrhage exists previous to delivery, and cannot be controlled by ordinary means,

the first and only thing to be done, is to deliver as speedily as possible.

Accidental hæmorrhage rarely occurs before the sixth month; the bleeding may be external or apparent and internal or concealed.

Symptoms.—In these cases there is usually sharp pain in the uterus followed either by a discharge of blood or, in case of concealed hæmorrhage, sudden enlargement of the uterine tumor, which enlargement may be general or confined to one point on the uterus, weak, rapid, fluttering pulse, palor, cold clammy surface, prostration and sometimes with little warning, death results before any one is aware of danger.

THERAPEUTICS OF ABORTION AND HÆMORRHAGE:

Aconite, threatened abortion in consequence of fright, when the fear remains and she seems to not get over it. Hæmorrhage with fear of death; she is sure she will die. Great fear and anxiety of mind, with great nervous excitability; dizziness on rising from a recumbent position. Circulation excited, rapid breathing.

Aletris farinosa, habitual tendency to abortion in feeble persons of lax fibre and anæmic condition, with sensation of weight in the uterine region, and tendency to prolapse of the womb.

Apis mel., stinging pains occur in one or the other ovarian region. Pressing down, or labor-like pains in the uterus. Urine scanty, and absence of thirst. Prolonged and difficult constipation. Abortion during the early months.

Arnica, after a fall, blow, shock, etc., especially if she commences to flow, with or without pain, or to have pains without flowing. She is excited and nervous, and has a bruised feeling all through her.

Asarum, threatened abortion from excessive sensibility of the nerves.

Baptisia, threatened abortion from mental depression, shock of bad news, watching and fasting, or from low fever.

Belladonna, severe bearing down, as if everything would issue through the vulva. Pain in the back as if it would break.

Profuse discharge of blood, neither very bright nor dark-colored. The least jar is unpleasant. Flushed face, red eyes, throbbing carotids and heat in the head.

Calc. Carb., suitable to plethoric females, who always menstruated too often and too profuse; disposition to leucorrhœa.

Cannabis Sativa, in cases where women have been or still are affected with gonorrhœa.

Caulophyllum, habitual abortion from uterine debility; severe pains in the back and loins, with great want of uterine tonicity; the uterine contraction are feeble and are attended with but slight loss of blood. Almost a specific for prevention of premature labor.

Chamomilla, threatened abortion with discharge of dark-colored or coagulated blood, violent pains in the bowels, extending to the sides with frequent urination. Spiteful irratibility; she is "snappish" when speaking.

Cinchona, where the abdomen is distended as if she were packed full; she wishes to discharge flatus, but its evacuation, either upwards or downwards, affords no relief. After abortion when there is hæmorrhage unto fainting; giddiness, drowsiness and loss of consciousness.

Crocus, metrorrhagia of dark, stringy blood, which is increased by the least exertion. Sensation as if something living in the abdomen where jumping about, with nausea and faintness.

Ferrum, after abortion, when there is hæmorrhage, with labor-like pains in the abdomen and glowing heat in the face; the blood is partly pale and partly clotted. She is very weak and pale.

Gelsemium, threatened abortion from sudden depressing emotions; or when pains go from before backward, the uterus seems to go upward.

Ignatia, suppressed grief seems to have been the exciting cause. Much sighing and sobbing.

Ipecac, profuse and continuous discharge of bright red blood, accompanied with pressure downwards. Pain about the umbilicus, passing off into the uterus. Continual sense of nausea without a relief.

Kali carb., impending abortion, with pains from back into buttocks and thighs.

Nux mosch., suitable to hysterical women who are disposed to fainting spells; fears she will abort.

Nux vom., every pain produces a desire to defecate and to urinate, particularly the former. Sore feeling in the region of the womb; she dreads being moved, and feels cross about it.

Opium, abortion threatening after great fright, especially if in the latter part of pregnancy.

Pulsatilla, labor pains alternating with hæmorrhage. The discharge is arrested for a little while, then returns with redoubled violence.

Rhus tox, if a wrench or a strain is the exciting cause.

Sabina, abortions occurring habitually at the third month. Discharge of bright red, partly clotted blood, worse from any motion. Violent forcing or dragging pains extending from the back through to the pubes.

Secale cor., threatened abortion, especially at the third month, with copious flow of black liquid blood. After abortion, difficult contraction of the uterus; thin black, foul smelling discharge.

Sepia, especially suited to plethoric females, who habitually abort from the fifth to the seventh month. Pressing in the uterus, with oppressed breathing. Sense of weight in the anus like a heavy ball. Yellow saddle across the bridge of the nose.

Veratrum alb., threatened abortion; pains with cold sweat, nausea, vomiting.

Viburnum opulus and *prunifolium*, vide Hale's new remedies, IV edition.

Accessory means are horizontal posture, absolute quiet, head low, cool acidulated drinks, cool room, bandage applied tightly to the abdomen, and if these means fail and the symptoms become in the least alarming, premature labor must be accelerated.

For the last four or five years I have given, in those cases

of passive hæmorrhage that did not readily yield to the ordinary remedies, the *aromatic sulphuric acid* three drop doses in sweetened water repeated every two hours; this remedy, although an empirical one, will rarely fail in arresting the hæmorrhage; sometimes it may be necessary, however, to give larger doses.

In all cases of hæmorrhage, of what ever nature, that occur before labor, the moment that the loss of blood has become sufficient to produce symptoms of prostration, the womb should be evacuated by rupture of the membranes and the induction of pains by kneading, cold applications and even ergot is here admissable, I usually give it in teaspoonful doses of the fluid extract repeated every half hour till the pains become frequent and strong. Sometimes ergot will produce nausea and vomiting, this may be obviated by giving it in cinnamon or mint water; and if this is not retained, *Ergotin*, one-half a grain in four minims of water, may be injected through a hypodermic syringe under the skin over the lumbar region and repeated if necessary.

The after treatment of abortion is absolute quiet in bed for at least ten days; should there be a foul smelling discharge the uterus should be examined to see that there are no pieces of placenta retained, if there are, they may be gently removed, and an injection of permanganate of potash one drachm to the pint of tepid water should be given.

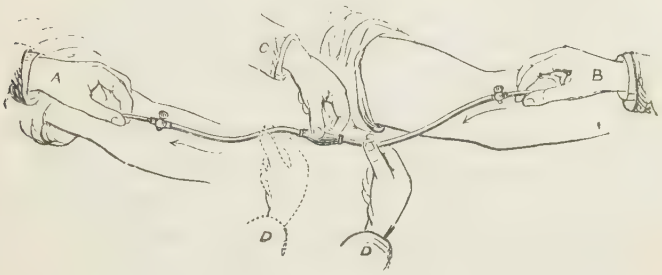
The best medicine in my experience for a foul long lasting lochia, is *Trillin* in four grain doses administered every four or five hours.

There are many cases of extreme hemorrhage, where, although the woman may be successfully delivered, yet she may subsequently sink from the loss of blood previous to delivery. In such cases, it has been recommended by Blundell and others to transfuse a portion of blood from a healthy subject into the venous system of the sinking patient.

As to the method of operating. We may either introduce the blood directly from the vein of the person supplying it by some connecting tube, or we may collect the blood in a vessel prepared for the purpose, and afterwards inject it into the vein of the patient. Both these methods have been extolled by their

respective advocates. For the former method, Dr. Aveling's is, I think, the simplest and best apparatus. It consists of a small

Fig. 20.



DR. AVELING'S APPARATUS.

The veins in the arms having been opened, the silver canula at either end of the instrument is introduced into them (A B). The tube between the bulb and the patient is now pinched (D), so as to form a vaccuum, and the bulb becomes filled with blood from the donor. The finger is now removed so as to compress the distal tube (D'), and the bulb being compressed (C), its contents are injected into the patient's vein. The bulb is calculated to hold about two drachms, so that the amount injected can be estimated by the number of times it is emptied. The risk of injecting air is prevented by filling the syringe with water, which is first injected before the blood.

India-rubber tube, having a silver canula at each end; the centre of the tube is somewhat dilated, and may be used by compression to force on the blood if it flows to slowly: one end of this tube is inserted into the vein of the person giving the blood, the other into that of the patient—the median basilic vein being the one selected in both cases—and the blood is allowed to flow through as long as may seem necessary. It is found, as a rule, that from six to eight ounces is generally sufficient, but in this respect we must be guided entirely by the circumstances of the patient.

When the indirect method is resorted to, the chief difficulty lies in the coagulation of the blood; hence various methods of of operating to avoid this result. We may either defibrinate the blood, or add something to prevent or retard coagulation. A few drops of aqua ammonia, (three drops to the ounce) or a little phosphate of soda are free from objection and generally successful. The defibrinating method is on the whole, perhaps, not quite so satisfactory, but still it is one which has been adopted with success on many occasions. In any case, if we use blood thus prepared, we must have some vessel in which to receive

it, and a syringe with which to inject it into the vein of the patient.

If the vessel be kept floating in warm water, the blood is prevented from getting over-cool, and we can now proceed to prepare the arm of the patient for injection. It would be well if it were understood that transfusion may be safely and effectually performed by the simplest means, any small syringe, with a tolerably fine nozzle, may be used. The veins are generally collapsed and empty, and by no means easy to find. The best way of exposing them is to pinch up a fold of the skin at the bend of the elbow, and transfix it with a fine tenotomy knife or scalpel, making a gaping wound in the integument, at the bottom of which the veins are seen lying. A probe should now be passed underneath the vein selected for opening, so as to avoid the chance of its being lost at any subsequent stage of the operation. A small portion of the vein being raised with the forceps, a nick is made into it for the passage of the canula.

CHAPTER VIII.

STERILITY.

Barrenness may result from absence or atresia of the Fallopian tubes, uterus or vagina; from absence of the ovaries, obstructions as tumors, flexions, etc. of the uterus. Various diseases, as inflammation or ulceration of the uterus, dysmenorrhœa, amenorrhœa, menorrhœa and chlorosis.

ATRESIA.—In case of congenital or accidental absence of any of the organs of generation of course no treatment will avail; but in cases of atresia the occluded canal may, by surgical means, be made pervious. In atresia of the uterus the introduction of a sound afterwards followed by seatangle or sponge tents to complete the dilitation, will be found the best way of over coming this difficulty. A tent should not be allowed to remain longer than six or eight hours in the womb, during which time the patient should keep her bed; they may be used two or three days by commencing the dilation with the smallest, which are not larger than a knitting needle, and gradually increasing the size. The opening may be made as large as desired. In case of malposition or tumors of the womb the usual treatment for this condition should be resorted to.

The operation for atresia vaginæ is described by Thomas as follows:

"Before operating, the patient should be anæsthetized, and the bladder and rectum emptied of their contents. She should be placed in the lithotomy position, upon a strong table, before a window giving a good light.

"The labia being retracted by the fingers of two assistants, holding the thighs, the finger of a third, who kneels by the side of the operator, is introduced into the rectum. A steel sound is then passed into the bladder, which the assistant, on the left of the woman, holds in the right hand. At this moment, this as-

sistant holds the woman's knee under his left arm, retracts the labium by his left hand, and holds the sound in his right hand. The sound, he must press upon gently, so as to let the operator's finger recognize its presence as it works its way up the vagina. By means of a pair of curved scissors, conducted up to the point of obliteration upon one finger, the tissue between the urethra and rectum should then be very cautiously cut, in a transverse direction, and the finger introduced into the opening made. This is really almost all the cutting which should be done; the rest should be accomplished chiefly by the finger. This, by the sense of touch, tells the operator exactly how nearly he approaches the sound in the bladder on one side, and the finger in the rectum on the other. To one who has not tried this plan, the facility with which the adherent vaginal walls may be separated, or a new tract torn through the tissues, will be surprising. Now and then, the application of the scissors or of a curved, probe-pointed bistoury will become necessary, but every such necessity constitutes an element of danger.

"As the operator approaches the regions around the cervix, he may become bewildered as to its position. Under these circumstances, let him make pressure by his unoccupied hand, over the hypogastrium, so as to force the hard cervix down upon his finger. Should he still feel a sense of bewilderment, he should pass the four fingers of the right hand, and the hand itself except the thumb, into the rectum, seize the uterus, steady it, and press its cervix down upon the finger in the vagina. Should he not succeed, even now, in determining the relation of parts, he should stop the operation, introduce a vaginal plug, and finish it in a week or ten days. Ordinarily, if he proceed in the cautious manner described, after having beforehand carefully explored the pelvis, and the uterus exist, he will succeed in reaching it.

"This method of operating is that which is said to have been adopted by Amussat in 1832, and by Dupuytren. Dr. Emmet, whose experience in this class of cases has been extensive, declares that if the new tract be created by incisions by scissors and tearing of tissue by the fingers, subsequent contraction and and atresia are less likely to occur than if a knife be used. Ac-

cording to his experience, incisions made by the knife granulate and undergo cicatricial contraction with much greater rapidity.

"However the operation for atresia be performed, there is always great danger of relapse, and unless special means be adopted for maintaining the perviousness of the canal, it will invariably occur. To prevent such a result, a plug of glass should be introduced into the vagina, secured by a T bandage, and worn for weeks. After this it should be kept in place at night for many months and, if necessary, for years. Where the entire canal has been obliterated, even these efforts may fail and contraction occur above, which gradually advances to the ostium vaginæ."

The reason that this operation is not a success, as is admitted, is on account of the glass plug which is used; this plug has a conical point and of course the rounded end being pushed up against the os uteri puts the vagina in the region of the cervical walls on a stretch and they close down over the os, filling up the cavity existing between the end of the glass cone and the inverted cone formed by the uterus. I have, in operating, been successful, from the fact that I use an ordinary cylindrical or Fergusson speculum instead of the plug; the speculum, as all know, being open at the upper extremity and permits the mouth and cervix to drop down into it, and again, one side of the speculum is longer than the other. The longest side should be put towards the rectum and the result of the operation will be a union in the natural place of the vagina and cervix, leaving the posterior wall of the vagina the longest.

Dysmenorrhœa.—The term Dysmenorrhœa is used to designate the condition in which menstruation is performed with *difficulty* and *pain*. The pain, the essential element, is of various degrees of intensity, and, like all uterine and ovarian pain, is chiefly felt at the bottom of the back and within the lower part of the abdomen. The menstrual discharge is generally scanty and imperfect; it may, however, be profuse, or in some cases the function may otherwise be healthily performed.

Varieties.—Several forms of Dysmenorrhœa have been described. (1) *The inflammatory or congestive form* occurs in

plethoric patients of strong passions, who are fond of the pleasures of the table and of the gaieties of life, it is sometimes accompanied by the discharge of flocks of fibrine and false membranes from the interior of the uterus. This has been called *membranous Dysmenorrhœa*, hypertrophied portions of the mucous lining of the uterus being discharged. In this form the pain is greater on the left side, shooting along the edge of the false ribs, up to the shoulder, then down to the ovary. "This is the most intractable and troublesome form of the disease. In a large majority of cases it follows abortion. Most women who have it have had an abortion in the early months or years of their married life, either accidental or induced. When this abortion took place, the lining membrane of the womb was peeled off, or exfoliated, and subsequently, with each return of the menses, a similar loss of this structure is sustained. The altered membrane may come away as a complete cast of the uterine cavity, but is usually thrown off in strings or shreds. Besides being a very painful form of the complaint, the woman sometimes suffering as much as in real labor to get rid of these shreds or casts, it almost always results in barrenness. In many cases abortion depends upon this disposition of the lining membrane of the womb to detach itself at stated periods."—*Ludlam.* (2) *Neuralgic Dysmenorrhœa*, which occurs in the feeble and anæmic, as after nursing, flooding, prolonged diarrhœa, etc. This variety occurs in delicate girls of feeble constitution, or in women of full habit but inactive life, or in those who are poorly fed and overworked The flow is scanty, the pain paroxysmal, but not entirely absent, less when warm, aggravated by cold. (3) *Spasmodic Dysmenorrhœa*, from indigestion, nervous irratibility, exhaustion, etc. In this form the suffering is in the back and the lower portion of the abdomen. (4) *Obstructive or congenital Dysmenorrhœa*, in which the pain is caused by the excessive flexure or insufficient calibre of the canal or passage which should convey the blood from the womb producing partial and temporary retention of the menses. This variety also includes *mechanical Dysmenorrhœa* from Polypi, Cancer, fibroid or other tumors of the womb, also flexions versions, which compress or distort the canal, or other-

wise impede the exit of the menstrual fluid. The phenomenon may be thus explained: Naturally the cavity of the unimpregnated healthy womb will only contain a very small quantity of fluid, and as soon as the menstrual blood accumulates, unless it finds free exit, it will distend the uterus, and thus give rise to pain, greater or less according to the sensibility of the patient and the amount of resistance."

"*Symptoms.*—Severe bearing down pains in the uterine region, resembling the pains of labor, and occurring in paroxysms; aching in the small-of-the-back, loins, pelvis, and sometimes extending to the limbs; headache, flushed cheeks, hurried breathing, palpitation; cutting and pressing pains in the abdomen. The pain often increases in severity as the period approaches, becoming so intense that the patient cannot move about, but is compelled to lie down, and even roll about in agony. The pain sometimes precedes the flow for several hours, or even days, and continues for a longer or shorter period, and may cease or continue when the discharge is established. At other times the pain continues till a *membranous* substance is expelled, when a healthy discharge may take place, or it may entirely cease. In some cases, the breasts become extremely sensitive and painful. I remember one case that went on to inflammation and mammary abscess. Patients subject to Dysmenorrhœa are generally troubled with confined bowels, frequent headaches, from congestion in the inter-monthly period, and are often sterile from abortion which occurs at the menstrual cycle.

Causes.—These are in part explained under "Varieties," and are chiefly as follows:—A congested condition of the secretory vessels of the uterus, disease of the ovaries, inveterate constipation, and a contracted canal of the neck of the womb. In obstinate constipation, the rectum may become so distended with impacted fecal matter, as by its pressure on the neck of the womb to render the escape of the menstrual fluid difficult and painful. Ovarian irritation is not an infrequent cause. Persons of a neuralgic, hysteric, or rheumatic tendency, generally suffer much pain at the menstrual period. Improper habits, such as self-abuse, ungratified sexual excitement, the pressure of stays, and the dragging of skirts on the abdomen, are also causes.

THERAPEUTICS:

Senecio.—Functional Dysmenorrhœa with scanty discharge. It gives the most marked relief if administered during the inter-menstrual period, for at least ten days preceding the catamenial discharge.

Borax.—Membranous Dysmenorrhœa. Profuse discharge at one time and scanty at another; labor-like pains in the back, hips and hypogastric region.

Cimicifuga.—Rheumatic or Neuralgic Dysmenorrhagia, with severe headache, aching of the limbs, dark and coagulated discharge, pain under the left breast, depression of spirits, etc. This drug or its concentrated preparation—Macrotin—is most useful in the inter-menstrual periods.

Xanthoxylum.—Neuralgic Dysmenorrhœa, especially in females of spare habit, nervous temperament, and delicate organization.

Belladonna.—Inflammation or congestive Dysmenorrhœa, with severe pain, bearing-down, throbbing, etc., especially in plethoric women. There is also congestion of blood to the head, confusion of sight, *redness of the face*, and the discharge may be profuse. In many cases *Acon.* may be advantageously alternated with *Bell.*, especially during the pain.

Hamamelis.—Ovarian Dysmenorrhœa, with severe pain in the groins, profuse leucorrhœa, *irregular menses*, extreme pain and soreness, smarting pain on passing water, and frequent urging.

Viburnum Opulus.—Spasmodic Dysmenorrhœa, thrice daily for a week previous to the expected period; every hour when the pain sets in; every quarter of an hour if it be very severe.

Gelseminum, this remedy is chiefly valuable for spasmodic dysmenorrhœa, as a *palliative during the period*, rather than as a curative agent.

Nitrite of Amyl., this also is useful for *Spasmodic Dysmenorrhœa*; it relaxes the blood-vessels; and may be administered by inhalation (two or three drops) when pains come on.

Secale.—Expulsive forcing-pains, followed by dark discharge, often in small lumps, cutting pains in the bladder or

bowel, pale face, cold sweat, flagging pulse, etc. Sometimes the agonising forcing-pains occur without any discharge. We have met with striking results from the administration of this remedy in cases presenting the above symptoms.

Pulsatilla.—Scanty menses, the discharge being attended with cutting pains in the region of the womb, abdomen, back and loins, with loss of appetite, chilliness, vertigo, etc., the pains moving from one part to another. This remedy is specially suited to young women of light hair and complexion, mild disposition, and to uncomplicated cases.

Atropine is an excellent remedy in neuralgic dysmenorrhœa, especially in women of a plethoric habit.

Cannabas indica. is the remedy in those cases of violent uterine colic that are accompanied by delirium or flightiness.

Cocculus.—Severe menstrual colic, spasms or cramps in the abdomen, with flatulence, nausea, dizziness, and faintness.

Collinsonia, dysmenorrhœa with *pelvic congestion, constipation, piles, etc.* Membranous dysmenorrhœa.

Coffea, exquisite *sensitiveness to pain,* extreme nervous restlessness, sleeplessness, etc.

Chamomilla, severe labor-like pains; pressure from the small-of-the-back forwards and downwards; colic with sensitiveness to the touch; dark clotted discharge; especially suited to nervous, *irritable, and bilious* patients.

Caulophyllum, dysmenorrhœa with a *normal discharge.* Herein it differs from *senecio,* which is most useful when the discharge is *scanty.* The 1x trit. is recommended. It also relieves after-pains. The testimony to the value of this remedy for dysmenorrhœa is very strong; it may be given as a palliative during the menses, and as a curative agent during the intervals. In the former case, it should be administered every two to four hours, and in the latter, twice daily. The action of *Caul.* has been compared to that of *Secale,* but with this difference, that it influences the neck of the womb as well as the body.

Kali Hydriod and Kali Brom. are also very valuable remedies in some cases.

Accessory Measures.—Daily active exercise in the open air;

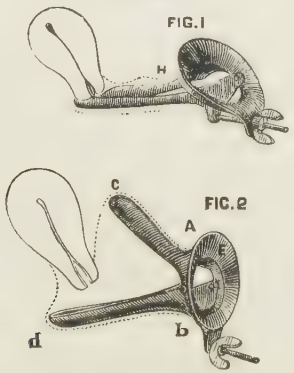
regular and early hours; plain, wholesome diet; abstinence from wine, coffee, and green tea; and the avoidance of influences that disturb the mind and temper, are important accessories in the treatment. During the intervals of menstruation, *the morning cold bath* should be used; or the lower parts of the back and abdomen may be sponged for three minutes with water at 100°, and then for one minute with cold, both morning and night: during the periods, the morning bath should be tepid; in any case vigorous friction should follow. Benefit has also been derived from painting the spine with *Acetic Acid*, or common vinegar, morning and night, during the intervals. But care should be used to remove the acid by means of a wet sponge if it cause smarting, and to avoid the application for that day; for the pain produced by the acid does harm. In some cases of dysmenorrhœa, with *scanty* and tardy discharge, Chapman's spinal *ice-bag* has been found very useful; it should be used for half an hour once or twice a day. In the *congestive* form of dysmenorrhœa, the *vaginal douche* may be used once or twice a day in the *inter*-menstrual periods with great advantage. *Sexual-connection,* which tends to increase the congestion of the uterine organs, and the thickness of the membrane to be expelled, should only take place at long intervals. As palliatives during the period, hot bottles, or flannels wrung out of hot water, and applied to the lower part of the abdomen, or *warm hip-baths,* in which the patient may remain for twenty or thirty minutes, or an enema of as hot water as the patient can comfortably bear, generally give effectual relief to the distressing aching and weariness that at times accompany the monthly function. *Rest,* both just before and during the period, is also an important adjunct. Attention must be given to the dress. No proximate cause is so potent as the pressure of stays and skirt strings, and the dragging weight of skirts on the abdomen. By these means the uterus is displaced, and the spine is weakened.

Ulceration of the Uterus.—"Induration of the os and cervix uteri is the result of chronic inflammation of the deeper structures either of those parts alone, or, as is more generally the case, concomitant with inflammation of the entire organ. It may be detected by the touch, the part having a firm, unyield-

ing, but smooth surface, instead of the unctuous and elastic feel which is presented in its normal condition, and differs from the hardness produced by malignant action in not being nodulated or apparently divided by septa."

There is usually some tenderness on pressing the finger against the part, and the vaginal discharge is creamy, or like starch diffused through water, as before mentioned. This complaint is not uncommon after matrimony, but is very rare in the young and single. Ulceration often accompanies or is induced upon an indurated condition of the os, and when this happens, it can scarcely ever be detected by the touch alone, and without the use of the speculum may continue to exist to the great discomfort and loss of health of the patient. The best speculum for exposing the os and cervix uteri is Dr. Higbee's shown in the accompanying cut. The next best speculum is perhaps Fer-

Fig. 22.



HIGBEE'S SPECULUM.

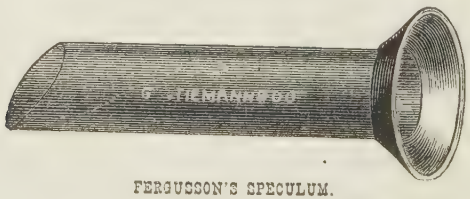
The upper blade clears the cervix, and is greatly depressed at H (Fig. 1,) so that the distance from C d (Fig. 2) may be 3¼ in., and the distance A b but 1¼ in. The flange E is the stop and stay of the speculum, and when dilated the cervix is drawn toward the speculum.

gusson's, shown on the following page. The suffering, however, is often greatly disproportioned to the extent of the ulceration, a result supposed to depend, in a great measure, upon the extreme tolerance of pain possessed by some women. There is generally a sense of heat in the vicinity of the os and upper part of the vagina, or referable to the hypogastrium; sometimes there is vaginitis, scalding micturition, great tenderness of the

walls of the vagina, which are irritable under the introduction of the speculum; profuse or scanty, yellow, and perhaps acrimonious leucorrhœa, swelling of the vulva, and occasionally of the inguinal glands, pain in coitus, or when the uterus is pressed; pain in the back of an aching and dragging kind, referable to the sacrum, with pain sometimes in the hip or groins; or there may be darting pains through the womb, weight and bearing down on standing, tenesmus of the bowel as if piles were present; the menses may be regular, but the flow is generally gradual, and the discharge dark and thick. Headache, with faintness and sinking at the epigastrium, irritability of temper, indisposition to exertion, and impaired appetite, are amongst the attendant symptoms.

On examination by touch, there is usually found morbid heat about the os and cervix, the latter feeling less elastic, while the lips of the os are more tumid than is natural, and pressure causes pain. For some time before ulceration takes place there is a congested state of the organ, which produces considerable enlargement of the os, and the development of pustulations here and there upon the lips, which give to the touch the idea of a granular spot, very sensitive and painful. After a continuance of this state for a longer or shorter period, from some cause or other, a sudden exacerbation takes place, and the speculum discloses on one or both lips of the os a spot, generally very red and abraded, varying in size in different cases. This is

Fig. 23.



FERGUSSON'S SPECULUM.

termed erosion or abrasion by most authors; it is darker than the membrane around and very shallow, which is the reason of its not being perceptible to the touch. The surface of the os is highly vascular, sometimes presenting fine tortuous vessels ramifying over it, and one or more of the pustulations before

alluded to may be occasionally seen elevated upon it, and often remain unbroken for a considerable time.

The first stage of inflammatory ulceration of the os and cervix uteri is characterised by a florid patch, of a brighter hue than that of the surrounding mucous membrane, and studded, apparently, with many minute granules, which are probably produced by the hypertrophied state of the mucous follicles, their mouths being obstructed by the tumefaction of the membrane. The disc of diseased structure is thus elevated somewhat above the surface, and well defined in its circumference. It may occur on one lip of the os uteri, or form a circle around the aperture; and in either case, may extend to the margin, and enter the cervical canal, or be limited to a portion only of the os. The part is exceedingly tender to the touch, and the condition of the proximate surface is that of vascular congestion,—dusky red, or bright vermilion, shining, and giving rise to a thick, creamy mucosity.

If the disease continues, the raised portion soon becomes stripped of the epithelium—it falls off like a crust, the granular appearance is lost, and the spot is marked by a dark depression or erosion, more or less deep, which has a distinct edge. The ulceration may then extend, broader and deeper, until it covers the os or traverses the cervical canal.

If general and local means are adopted to restore the part to a healthy action, the depression becomes filled up, and minute granulations are soon visible, which gradually coalescing, the margin contracts and the part heals. This has been variously termed granular inflammation, erosion, follicular inflammation, inflammatory ulceration, etc. The latter term is, perhaps, the most appropriate; since it is the result of chronic congestion and inflammation.

If the disease progress, the appearance which is presented is what has been termed the *granular* ulcer, a name objected to by many. I believe it to be only an advanced stage of the simple superficial ulceration or erosion. The surface, instead of being smooth and dusky in its color, is elevated and of a florid red, looking rough or composed of closely packed minute gran-

ulations, which are extremely painful, and often bleed when touched.

The ulceration sometimes extends over the os, is perhaps confined to one side, entering into the cervical canal, which is rendered patulous,—the lips of the os being tumid and everted, tender on pressure, and evidently the seat of chronic inflammation; the rest of the surface is red, smooth, and shining, with enlargement of the follicles filled with mucus here and there. The ulceration may even extend along the cervical canal into the uterus itself, but this cannot be detected by the speculum. Sometimes ulceration occurs in small detached spots, so superficial that the touch cannot detect them; but when the speculum is used they are observed scattered over one lip of the indurated os, like small pin-hole ulcers. By degrees these coalesce and ultimately cover the lip, and destroy it. Such examples usually turn out to be connected with malignant induration of the os and cervix. They heal up very kindly under Homœopathic treatment, even though the induration remains for a time. Occasionally the os uteri is found to be fissured, or affected with rhagades; in which case the part is very tender, feels raw and uneven, and looks, when observed by means of the speculum, as if the epithelium had been stripped off, without any further loss of substance, the part appearing more red than the rest. It is sometimes connected with an anæmic condition of system.

The discharge which accompanies the several forms of this disease is purulent or ichorous, varies considerably in quantity, and is often attended by hæmorrhage; the quantity of the leucorrhœal discharge would seem to depend upon the degree to which the inflammatory condition of the vagina exists; there is no fetor if cleanliness be observed. It more frequently occurs at the period of the cessation of the menses.

A third form is the ulcer with soft granulations, which is more destructive, but would appear to be a variety of the former, and depends for its inveteracy upon some dyscrasia of the constitution, a scrofulous diathesis, or old metritis chronica.

The fourth form is the syphilitic. This is well marked by its dusky appearance and dirty colored secretion. It is inflam-

matory in its origin, and slow in its progress, and requires special treatment.

The causes of the ulceration of the os and cervix uteri are cold, insufficient clothing, wet feet during menstruation, the improper use of astringent injections, painful intercourse, inflammation of the uterus, acute or chronic, delicacy of the tissue in the individual, neglected leucorrhœa, etc.

THERAPEUTICS.

Belladonna is indicated by a sense of fulness and pressure in the vagina, making it difficult for the patient to stand long, with pains in the hypogastrium and sacrum; frequent hæmorrhages from the uterus, nervousness and congestion.

Platina is useful in induration of the womb, with cramp and stinging pains; if there is a burning sensation at the left side, and cutting pain in the hypogastrium; painful pressing towards the genital organs; menorrhagia with discharge of coagulated blood; with pressive labor-like pains in the small-of-the-back, and extending to the thighs and groins.

Sepia is very serviceable in removing the chronic inflammatory condition which precedes or accompanies induration; or, if there be constant menorrhagia, with pain in the groins; or any prolapse of the uterus, with acrid leucorrhœa.

Sulphur is one of the most efficient means of controlling the inflammatory condition which precedes ulceration of the os and cervix uteri, and of accelerating the cure. It diminishes the tumefaction of the adjacent parts, unloads the vessels, and by regulating the circulation which has a relation with the hepatic system, establishes a healthy condition in the hepatic-uterine vessels. It requires a continuous action.

Conium acts generally upon the glandular organs of the female; and is especially useful when spasms of the uterus exist, with induration and vaginal itching; and if there be gastric symptoms, such as sour retchings.

Kreasotum is in relation with the simple indurated state of the uterus or tubercular scirrhus, where there are stitches in the vagina from above, causing the patient to start, sensitiveness of the os to contact, causing pain; burning and swelling of the

internal and external labia; premature menses, with discharge of dark, lumpy blood, and sacral pains, succeeded by an ichorous, bloody discharge, with corrosive smarting; also if there are spasmodic pains in the rectum, extending to the groin; urging to urinate, turbid dark urine; lancinating pains in the rectum. The menses intermit for hours or days, after which they return in a more fluid form, with severe colic.

Arsenicum, if there be induration attended by continual discharge of an acrid mucus from the vagina, with burning; tenderness of the os; irritation of the bladder, with burning and dark urine and painful micturition.

Lycopodian is indicated by burning of the vagina, painful intercourse, darting or gnawing pains in the uterine region pruritus of the vulva, a feeling of illness before the menses, profuse leucorrhœa, dull headache and dyspeptic symptoms.

Hepar s. is also highly useful in the same form of the disease, especially in scrofulous subjects.

Calcarea c. will be found serviceable likewise in similar cases with the last.

Iodium corresponds with induration, or ulceration of the os and neck of the uterus, preceding cancerous degeneration; profuse, long-flowing menorrhagia, unusually violent, with pains in the small-of-the-back, and violent pressing in the hypogastrium towards the pudendum; emaciation and shrinking of the breasts, brownish-yellow complexion, languor, spasms, and disposition to faint; scrofulous diatheses.

Graphites increased suffering just before and after the menses; which occur every six weeks; the blood being black, lumpy, and offensive; sense of a heavy load in the abdomen, with violent lancinations in the uterus, extending down the thighs like an electric current.

Thuja is also recommended by Dr. Hartmann for those cases of induration and rhagades of the os and cervix uteri, and in the cauliflower, readily-bleeding excrescences, which have a sharp and pungent smell; or in dry, warty excrescences, with severe stinging pain and burning during micturition.

Nitr. acid. is the best remedy for all syphilitic degenerations, for rhagades and eruptions, pustulations, etc.. the pus about the

ulcer being dirty yellow. In ulceration it must be persistently used, in alteration with sulphur at long intervals.

Sabina may be useful for the heavy weight, the labor-like contractive pain in the uterine and sacral regions, copious discharge of coagulated blood; the os uteri open.

Mercurius is given with advantage, occasionally, as an intermediate remedy in similar cases as *Acid. nitric.*; especially when there are, prolapses of the vagina and inflammatory swelling, with heat, redness and soreness of the membrane, with or without herpetic ulcerations; with pains in the pelvic bones and femora.

Staphysagria is also an occasional remedy for the pains in the hips and thighs, with spasmodic pains in the pudendum and vagina; with stinging itching of the parts; the pains are more intense when sitting.

Carbo veg. relieves an intolerable, burning pain, deep in the pelvis, setting in at regular periods in the daytime, increasing gradually and then decreasing again: or an aphtous state of the pudendum, with sanious, mucous discharge from the vagina; faint sinking sensation at the epigastrium at noon.

Carbo animalis is indicated by induration of the neck, with tearing pain across the ossa pubis, through the pudendum, to the anus; with thin watery leucorrhœa; burning during micturition; burning in the groins, with bearing down; flatulent distensions, or fungous hæmatodes.

Kali carb. may be useful when an acrid, offensive, altered condition of the menstrual blood exists, with chilliness and spasmodic pains in the hypogastrium.

Secale is useful in softening or decomposition of the uterus, with great depression of the vital power, involuntary movements of the body or extremeties, uterine spasms, etc.

Aurum is useful in chronic induration of the uterus, simple or malignant, with prolapses and melancholia; with labor-like pains in the abdomen; especially in scrofulous or mercurialised individuals.

Magnesia muriat. is indicated in scirrhous induration of the uterus, amongst hysteric and spasmodic subjects; with abdomi-

nal spasm and violent bearing down upon the rectum and the genital organs, accompanied by lowness of spirits and ill humor; frightful cuttings in the abdomen suddenly; pressure on the rectum, with constipation.

Accessories.—Ludlam says: "A large proportion of cases of external ulcer need nothing more topically than to be protected from the irritating influence of the atmosphere by some bland and harmless application. In some cases we may facilitate the healing process in them by the local use of the same remedy that is given internally; but excepting in specific ulcers, not one in a thousand of them needs cauterization. So in ulceration of the os uteri—when there is no specific reason, either in the nature of the lesion, or in its cause and symptoms, why some specific remedy, as for example the nitrate of silver, or iodine, or what not, should be applied locally, your good sense and judgment would dictate their prohibition."

"It has been argued in advocacy of the indiscriminate local treatment of uterine induration and ulceration, that a spontaneous cure thereof was impossible, because of the frequent return and concomitants of the menstrual flow, the dependent position of the uterus, and the evil consequences of sexual excitement. But it does not follow that, because these cases do not get well of themselves, therefore they all need to be cauterized. It is bad practice to prescribe at wholesale."

"You will not understand me as objecting to every variety of local application in simple ulceration of the os uteri. Such an extreme view would be as untenable as that which holds that such means, and only such, are absolutely requisite and curative. There is no valid objection to the topical employment of diluted glycerine, with or without calendula, of sweet oil, or of oleaginous collodion." I generally apply a pledget of cotton saturated with a glycerole composed of equal parts of glycerine and Tr. of Calendula. Sometimes the Tr. of Hydrastis Can. may be advantageously substituted for the Calendula. Another favorite manner of applying the Hydrastis is in the form of *Hydrastin*, the first decimal trituration about ten grains of which are wrapped up in cotton wadding or some soft loose textured material, as a

piece of an old linen napkin, making a pledget very much resembling, in appearance, the nurse's familiar sugar teat. The same rules as to rests, bathing and injection should be observed as are found under the head of leucorrhœa on p. 113 and 114.

There is, however, one objection to injections of medicated fluids in the ordinary manner, and that is, that the fluid is not brought in direct contact with the ulcerated surfaces, and even if it should be is not retained there long enough to effect any beneficial results. This difficulty has, I am happy to say, been successfully overcome by Dr. Molesworth, in his celebrated vaginal syringe, which will carry a cleansing or medicated wash to every and all parts of the vagina and mouth of the womb,

Fig. 24.

and removes by suction, without injury, all impurities or foreign matter that may be upon the walls and in the folds of the mucous membrane of the vagina, or within the mouth of the womb, if open.

Amenorrhœa.—The term amenorrhœa is used to describe absence of the menstrual discharge. It is divided into (1) *Emansio mensium,* a delay of the menses, although the person has attained the proper age. (2) *Suppressio mensium,* in which they have appeared, but, as the consequence of cold or some other cause, are arrested. We shall first consider delayed menstruation. As before stated, the period at which the "change" first takes place varies in different constitutions, climates, and under different circumstances, and no active medicinal means should be used so long as the health continues good. Emmenagogues, or forcing medicines, such as herb-tea, etc., must be entirely and imperatively eschewed. Symptoms come after causes.

Symptoms.—When all the external signs of womanhood have appeared, and menstruation does not occur, but there are aching, fulness and heaviness of the head, bleeding from the nose, palpitation of the heart, shortness of breath on slight exertion, weariness of the limbs, pains in the small-of-the-back, in the lower part of the bowels, and down the inside of the thighs—these may be regarded as so many indications that nature is seeking to establish this important function, and justify the administration of one or more of the following medicines according to the indications present.

Causes.—It is important, first of all, that the cause should, if possible, be definitely ascertained. The immediate cause is probably an inability of the nervous centres to stimulate the ovaries. Delay of the menses from the causes just stated rarely occurs in healthy and vigorous persons, but usually follows as a consequence of original delicacy of constitution, or of some long-standing affection. The very common notion that a patient suffers because she does not menstruate is very fallacious; for, except in *retentio mensium*, the patient does not suffer from an accumulation; the delay is due to a defective condition of the general health. Hence the impropriety of giving forcing medicines, which is frequently done, often to the permanent injury of the, as yet, imperfectly developed organs. We have known instances of extreme periodic suffering, continued for many years, traceable to this cause. In many cases, too, it will be found that the disturbances supposed to be due to delayed menstruation really arise from the patient having taken too little, or innutritious food, or from her habits having been too sedentary or artificial, or of too little out-of door air and exercise; or, in brief, from her being subjected to influences inimical to her general good health, during a critical period of her physical development.

Tardy menstruation is especially significant in those girls who are predisposed to any form of consumption. In this class of persons it implies a depraved habit of body in which the menses may not appear at all, or in which a vicarious flow of blood is very apt to take place from one or another of the

mucous surfaces, more especially from those which line the respiratory passages. If the young girl who has not menstruated, although she may be fourteen or fifteen years of age, has a cough or difficulty of breathing, a sore throat, hoarseness, or pain in her side, it should be taken as a symptom of ill-health, and measures immediately instituted for its relief. The quaint old rule should, however, not be lost sight of: "She is not sick because she does not menstruate, but she does not menstruate because she is sick."—*Ludlam.*

THERAPEUTICS:

Cimicifuga, delay from deficient nervous energy in the ovaries, with excess in other organs, manifested by extreme nervousness, Hysteria, heavy headache, Chorea, etc.; pain under the left breast, and in left side generally; rheumatic pains, etc.

Pulsatilla, pains in the abdomen across the back; hysterical symptoms, alternate laughing and crying, nausea and vomiting, palpitation of the heart, indigestion, and loss of appetite. *Puls.* is chiefly suitable for patients of light complexion, fair hair, and timid, easily vexed, yet uncomplaining disposition.

Ferrum, debility, languor, palpitation, indigestion, sometimes *Leucorrhœa,* sickly complexion, puffiness of the face or ankles, and other anæmic and chlorotic symptoms. (See the Section on "Chlorosis.")

Conium, we have obtained excellent results from this remedy, especially in delayed menstruation consequent on *ovarian inertia,* rather than on constitutional cachexia.

Senecio, this remedy, administered during the inter-menstrual periods, has proved eminently successful, and seems to possess alike the power to restore the secretion when suppressed, of augmenting it when deficient, and of diminishing it when excessive, as also of alleviating the pain of Dysmenorrhœa. It may be stated to act as a uterine tonic, invigorating the catamenial function, and restoring equilibrium of action. Dr. Holcolme, of New Orleans, recommends the 1x trit. of *Senecin;* a powder every night for four months for retarded or suppressed menstruation.

Phosphorus, for delicate constitutions, with sensitive lungs, and a predisposition to disease of those organs. Sometimes, in such cases, instead of the menstrual discharge, expectoration of blood in small quantities occurs, with cough, and pains in the region of the chest. (See Bryonia, farther on; also Section on "Vicarious Menstrutation.")

Calcarea Phos., hoarseness, confirmed cough, *debility*, emaciation, and Hectic.

Iodine, scrofulous patient, with enlarged glands and a lymphatic constitution.

Calcarea Carb., similar constitution to the above, but with chronic indigestion, heartburn, Hysteria, etc.

Arsenicum, poor appetite, great prostration and emaciation, swelling of the ankles, feet, or face, etc.

Nux Vomica, congestive morning headache, constipation, frequent acute indigestion, spasms, etc. *Nux V.* is suited to patients of dark complexion, energetic, vehement, and irritable disposition, and to those who take too little out-of-door-exercise.

Bryonia, bleeding of the nose or spitting of blood instead of the menstrual discharge, with hard dry cough, stitches in the chest, and constipation.

Sepia, delay of the period in persons at the proper age (from venous congestion), with distention or pain in the abdomen, giddiness, nervous headache, easily-flushed face, fine sensitive skin; retiring, melancholic disposition.

Polygonum, several days' delay every month, with great malaise.

Veratrum, cold hands and feet; hysteric and fainting fits; nausea, vomiting, and tendency to diarrhœa.

Accessory treatment.—The feet should be kept warm and dry, and comfort, rather than fashion, should determine the entire clothing arrangements. Delayed menstruation is often the consequence of exposure to cold, or defective circulation in the surface, which warm clothing would obviate. It is especially necessary that the abdomen be kept warm; the necessity of wearing drawers, to protect it from cold, must, therefore, be obvious. Too studious and sedentary habits should be corrected;

exercise taken out-of-doors, particularly in the morning, including walking, running, and the games of skipping-rope, trundling the hoop, etc., as they are powerful auxiliaries in obtaining health of body and vigor of mind. These exercises are likely to be yet more efficacious if practiced in the country, on a dry, sandy soil, and in pure and bracing air. If pleasant company can be added to the charms afforded by diversity of scene, the advantages will be still greater. All these means should be aided by a carefully selected nourishing diet, taken at regular hours, three times a day, consisting of easily digestible food, in due proportions from the animal and vegetable kingdoms. All made dishes, high seasoning, spices, etc., should be especially avoided; also, except in great moderation, the use of tea and coffee.

The Cold Sitz Bath.—In Amenorrhœa this is a powerful means of stimulating the menstrual function, but is not advisable when the patient is very feeble, or anæmic, or when there is reason to suspect constitutional disease as the cause of the dormant function.

The patient should sit in a hip-bath containing water at a temperature of 50° to 60°, sufficient to cover the hips, the legs and feet being not immersed, but kept warm by means of flannel wraps, or a hot foot-bottle or bath; the shoulders also being covered. The bath should be taken at bed-time, and last from five to fifteen minutes, gradually increasing the time as the patient can bear it. On leaving the bath, the patient should be well rubbed with a bath-sheet or large towel till warm, and instantly retire to bed. If chilly, a hot-water bottle may be applied to the feet. But should she remain uncomfortable, the bath should be discontinued, or given for a very short period. In suitable cases it may be continued every night for a week or two. The spinal ice-bag is also a valuable accessary.

"Suppression of the Menses.—When menstruation has fairly been established as part of the economy, it is yet liable to be suppressed, or to be greatly diminished. It is necessary to distinguish between suppression and retention. The former indi-

cates its arrest from non-secretion of the catamenial fluid; the latter that, although secreted into the uterine cavity, there is some obstruction to its escape."

"*Causes.*—Suppression may arise from a physiological cause, such as pregnancy, frequently, however, it is the consequence of weakness from sedentary, indoor occupations, combined with want of fresh air and sufficient rest; excessive loss of blood; chronic and acute diseases; sexual excesses; and mechanical obstruction: or it may occur suddenly during the flow, from exposure to cold and damp, such as getting the feet wet, sitting on the ground, eating ices, violent emotions—anger, terror, fright, etc.—or from any other cause which abruptly shocks the system. Suppression, for two or three periods, without pregnancy, sometimes occurs after marriage, simply as the consequence of excessive excitement. Wearing thin soled shoes is a fruitful source of the decay of female beauty, and the decline of female health; injury from tight lacing, although considerable, being nothing in comparison with that resulting from the fatal habit of wearing thin soled shoes in all kinds of weather. Dr. Grayley Hewitt has often known the menstrual discharge to be suspended for one or two periods, in women who have gone to reside in a house with stone, uncarpeted staircases, their previous residence having had a wooden staircase. Many girls are apt to have "a check" from the slightest chill or exposure during the monthly period. Happily, the effects of some, at least, of these causes may be diminished by the frequency of their occurrence, so that those accustomed to bathe may go into the sea during menstruation with perfect impunity, whilst habitual exposure to the casualties of life necessarily diminishes their injurious impressions. Sudden suppression during the period occasions the most acute suffering, and may develop alarming symptoms in the nervous or circulatory systems, or in both; but chronic is far more serious, as it points to a deeper constitutional cause. In Anæmia, Amenorrhœa is a prominent symptom, attended with pain in the back, lassitude, headache, depraved taste, deficient appetite, furred tongue, and constipation. Such cases occur commonly among poor, hard-worked women in the

close quarters of towns. We have frequently observed, among the early symptoms of Consumption occurring in girls and women, that there has been at first a scanty menstrual discharge; and that, as the constitutional disease has advanced, the suppression has become complete. In such cases as these, it is most undesirable to attempt to restore the function by any stimulating drugs whatever. The attempt would be vain, and the result disastrous. The suppression of menstruation is not the cause of ill-health, but ill-health is the cause of the suppression, and it is the primary malady that must be attended to. Country air, early hours, and generous diet will do more than any emmenagogue."

"A sea voyage is very apt to occasion suppression of the menses. A very large proportion of the emigrant girls and women who arrive in New York, after having been on shipboard for some weeks, suffer from Amenorrhœa. Indeed, a sea voyage is sometimes an excellent remedy for excessive menstruation."

THERAPEUTICS:

Sudden suppression during the flow.—The patient should be immediately placed in a hot hip-bath, and afterwards retire to a warmed bed. The free action of the skin should be promoted by a few doses of *Acon.* at short intervals, and by frequent draughts of cold water. The success of this treatment, however, depends on the promptness with which it is adopted. *Gels.* for suppression from sudden contraction of the cervix, with spasms or choreic movements. *Dulc.* may be required; the last if suppression be the result of damp, and there are eruptions on the skin.

Aconitum, sudden suppression from exposure to cold, with weariness and heaviness; heat, thirst, and other febrile symptoms; weight in the loins, and faintness or giddiness on rising from a recumbent posture.

Belladonna, rush of blood to the brain, with sparks before the eyes, dizziness, confusion, aching pains in the eyeballs and sockets, shooting pains about the womb and ovaries, bearing-down, with heat and dryness in the vagina.

Cimicifuga, intense headache, pain in the eyeballs, back, and limbs, especially of the left side; palpitation, depression of spirits, and nervousness.

Pulsatilla, languor, pain across the small-of-the-back and lower part of the bowels, palpitation, nausea and vomiting, sensation of fulness in the head and eyes, and disposition to general coldness, frequent urination, and *Leucorrhœa*. Especially suitable for females of a mild, timid, and amiable disposition, who are easily exited to tears or to laughter.

Sepia is also an important remedy, and may follow the last medicine, particularly in females of a delicate constitution and sallow skin; the sufferings are often mitigated by exercise and aggravated by rest; bearing-down in the lower part of the abdomen and pains in the loins, melancholic mood, and morning headache.

Conium, retarded or suppressed menstruation of long standing, not depending on constitutional causes.

Bryonia, vertigo, bleeding of the nose, stitches in the sides and chest, dry cough, confined bowels, severe pressing pain in the stomach, *irritability*.

Opium, recent cases, with great heaviness of the head, dizziness, lethargy, and drowsiness, especially if there be also obstinate constipation and retention of urine.

Accessory means.—The cause of the suppression, and the co-existing impairment of the general health, should be carefully inquired into, and, if possible, removed. All physical or mental depression, undue excitement, night air, late hours, highly seasoned and stimulating food and drink, should be avoided. The meals should be taken with regularity, and under pleasant and cheerful influences, the stomach never overloaded, the food simple, nourishing, not too great a variety at one meal, and only such as has been uniformly found easy of digestion. The drink should be milk and water, cocoa, black tea in moderation, and pure water. A change of air to the seaside or to the country is mostly advantageous; when this is not practicable, out-of-door exercise, useful employment, and agreeable company or books. In short, every means should be adop-

ted that is calculated to give constitutional vigor. While hoping for a return of the menstrual discharge, the exercise of patience is sometimes necessary, as the general health is often greatly improved before this crowning evidence of cure is obtained. The spinal ice-bag or cold sitz-bath should not be forgotten in suitable cases.

CHLOROSIS.—By chlorosis is meant a condition of general debility affecting young women at about the age of puberty, due probably to nervous causes. There is anæmia or deficiency of the red corpuscles of the blood, which gives the skin a pale, yellowish, or greenish, and almost transparent hue. The greenish hue is so characteristic as to have given rise to the name—"green sickness." The temperature of the body is diminished, and morbidly sensitive to cold. There is generally delayed, suppressed, or imperfectly-performed menstruation. Respiration, circulation, and digestion are also disturbed; and the whole organism, physical and mental, is feeble and enervated.

Symptoms.—In addition to those given in the preceding paragraph, the following conditions are always more or less prominent:—loss of appetite, the patient often subsisting upon an incredibly small quantity of food; or the appetite is perverted, and such articles craved for as chalk, coal, cinders, etc. In other cases, the appetite becomes fitful, or the patient eats simply as a duty. Most patients complain of obstinate constipation, or this condition may be alternated with relaxation. Sometimes the breath is offensive, or there may be ulceration of the stomach, and persistent vomiting, or even Hæmatemesis. These and other gastric disturbances are attended by loss of the cellular tissues, and even wasting of the muscles.

The face becomes puffy, and the features somewhat obscured; the eyes languish, the lids are œdematous, and surrounded by dark circles, which strongly contrast with the pearly, translucent appearance of the white of the eyes, and the pallor of the lips. A species of dropsy, most generally affecting the ankles, is often present, and the whole surface is dry and bloodless. The hands are shrivelled, and the nails brittle. Nervous affections of the heart, unattended by any structural

change, are very common, with palpitation, chilly turns, with cold and often œdematous extremeties. The pulse is usually, but not invariably, slower, and also weaker than in health. But the most marked symptom affecting the circulation is the *anæmic bruit or bruit de diable;* this is a continuous humming or cooing sound heard over the præcordial regions and especially over the large blood-vessels of the neck. It can also be felt, and under the finger resembles the vibrations of a musical cord. It is supposed to be due to the tenuity of the blood.

It is very rare for Chlorosis to exist without menstrual irregularities; Amenorrhœa is the most common complication. Sometimes the monthly discharge, if it ever occurred, is superseded by a copious Leucorrhœa. The co-existence of non-menstruation and gastric disturbance has sometimes given rise to a suspicion of pregnancy, and we have not infrequently been consulted from the fear which has thus been excited.

Chlorotic patients become listless, lethargic, and melancholy. They lose interest in society and in the general events of life, preferring solitude and quiet repose. There is frequently paroxysmal, often regularly periodic headache, chiefly affecting one temple, greatly aggravated by over-anxiety, worry, and other emotional influences. In short, as the foundation of all the symptoms, the nervous system is so completely the seat of the disease that there is not an organ, or tissue, or fluid of the body that escapes.

Causes.—The chief predisposing causes are the lymphatic temperament, and a tendency to struma. In these persons the blood-making function is liable to such disorder as results in a deteriorated quality of that fluid. Hence the relative diminution of the red corpuscles, and the proportionate increase in the watery part of the blood. This predisposition is fostered by hygienic conditions which tend to lower the standard of health, and to vitiate the process of sanguinification. (*Ludlam.*)

Among the hygienic conditions, the most favorable to the production of Chlorosis are—confinement in badly ventilated or imperfectly lighted or shaded rooms—under-ground kitchens and back rooms, shut in by high walls excluding the direct rays

of the sun, and a free circulation of air—and deprivation of open-air exercise and recreation.

Other causes are—too studious and sedentary habits; chronic inflammation of the intestinal canal; enlargement and inaction of the mesenteric glands; long-continued grief, unrequited love, anxiety, fright, or fatigue; masturbation; uterine or ovarian disease, innutritious food—bread and butter forming the staple diet, the relish for animal food of every kind almost completely ceases. These and similar causes not merely effect gradual changes in the composition of the blood, but impair the process by which the blood itself is made.

THERAPEUTICS:

Ferrum, fits of oppression, palpitation, and anxiety; poor appetite; puffiness of the face and lips; coldness of the feet and swelling of the ankles; and absent, scanty, pale, or watery menstrual discharge. *Ferr.* often requires the aid of other remedies,—*Graph.*, *Sep.*, *Puls.*, *Helon.* Dr. Ludlam recommends *Citrate of Iron and Strychnia*, 3x, and Dr. Holcombe recommends *Phosphate of Iron* (1x trit.) for Chlorosis in patients of strumous constitutions and lymphatic temperaments, especially when associated with degeneration of tissue or other cachexia.

Calcarea Carb., inveterate cases, with loss of appetite, chronic acidity, pallor of the countenance, Leucorrhœa, etc. It probably does good by correcting *defective assimilation*, or imperfect conversion of digested food into healthy blood and tissue. It is more especially required for strumous patients.

Pulsatilla, scanty or absent menses; loss of appetite or taste, and tendency to relaxed bowels; weeping mood. Puls. is chiefly suited to uncomplicated cases.

Helonias, chlorosis with atonic conditions of the womb, and defective digestion and assimilation. Our experience with it fully justifies the designation it has received of a uterine tonic.

Graphites, too late, scanty, painful menses; constipation, with large and knotty stools; unhealthy condition of the skin.

Sepia, pelvic congestion with Amenorrhœa or Menorrhagia, and often constipation, Leucorrhœa, sick headache.

Ignatia, nervousness; mental depression, or rapid emotional changes.

Plumbum, chlorosis with obstinate constipation and a general cachectic condition.

Arsenicum, shortness of breath, languor, etc.

Phosphoric Acid, chlorosis traceable to *Masturbation*.

Natrum Mur., Oedema; venous murmurs; enlarged spleen, consequent on rheumatic affections, and Pneumonia.

Sulphur, chronic bad health.

Administration, a dose three or four times daily. When improvement sets in, the remedies should be given at longer intervals.

Accessory means.—Good nourishing food, including milk and milk diet, brown bread, animal broths, oysters, cod-fish, and juicy varieties of meat. Malt liquors, frequent exercise in the open air and sunshine, avoiding fatigue; horseback exercise is particularly advantageous; also rowing, croquet, and other out-of-door games. Riding in an open carriage, and walking, are also useful. The air breathed, both indoors and out-of-doors, should be pure. Light should be freely enjoyed. Cold bathing, particularly in sea water, is much to be commended. Persons unaccustomed to bathe, or extremely sensitive ones, should commence with tepid water, and the temperature be gradually lowered till a cold bath can be advantageously borne. Cold-bathing is very necessary, in consequence of the extreme sensitiveness of chlorotic patients, which may by this means be diminished.

Chlorotic patients are notoriously fond of ease, and desire to remain in a state of muscular inactivity; but this desire must no more be yielded to than that of travelers to the soporific effects of intense cold; for the habitually cold skin of chlorotic patients causes a half-poisoned state of the blood, by the retention of that which should be excreted, and the imperfect oxygenation it undergoes. They should therefore be urged and forced to exert themselves, so that the blood may circulate more rapidly, and thus absorb that due quantity of oxygen which is necessary

to impart to it those vital properties which excite all the organs to perform their proper functions. (*Tilt.*)

It is also important, as may be inferred from the remarks of Hempel, that girls should be unobtrusively watched, and, if possible, not allowed to remain alone.

Chlorosis and Consumption.—In Chlorosis there is often a slight hacking cough, dyspnœa, or other chest symptom, leading to a suspicion of Consumption; although an examination at once enables us to decide on the real nature of the case. The presence of the anæmic murmurs, the normal characters of the respiratory movements and sounds, the absence of hectic, and of wasting to any great extent, are sufficiently marked to distinguish Chlorosis from Phthisis. Chlorosis essentially consists in the absence of the red corpuscles or coloring matter of the blood; whereas in Consumption contamination of the blood is superadded. In the former disease, the temperature is below, but in the latter, it is above, the normal standard. There is also this essential difference in the treatment,—that in the former we have but to supply the missing elements of the blood, and even the most unpromising cases are readily and perfectly amenable to our remedies; but in the latter we have to exterminate a poison, and we need not remark that too many cases resist every known means of cure.

caused the bad thought, it becomes ingrained into the body of her child. Many an impulse to thieving is given by the mother to the child, by wishing for things, without desiring to pay for them.

Thousands of cross, disobedient children, so called ingrateful children, are born yearly, because one, or both parents objected to their conception, and mature birth. Two essential things are to be accomplished—first, to render labor easy, and without danger to mother or child—second, to improve the race. The first can be [illegible] and the necessary Homœopathic treatment. The second by blending the right temperaments, and physiques, and controlling the passions and thoughts during pregnancy. We know that the most certain way to make labor easy, is to keep the [illegible] open as much as possible, and the bones as soft as can be done without injury to the off spring. This is accomplished by [illegible] of fruit, vegetables, and carbonaceous substances to the entire exclusion of the phosphates, such as gramm flour, [illegible] cracked wheat, cornmeal and hominy. From experiment, it is found that the system soon becomes [illegible] to one fruit [illegible] and the excessive acidity, that we imagine would [illegible], does not occur. It is urged that delicate women cannot eat fruit, certainly they cannot eat coarse food, or even bread [illegible] as is shown by indigestion, morning sickness, and repeated vomiting [illegible] refuse to retain any kind of food, and the life of mother or [illegible] is a victim of anæmia, caused by want of assimilation of food. This is preeminently an age of experiment, demonstration, and not of theory. So let the family physician lay aside preconceived notions, and *untried* theories, and test for himself every thing that holds out the faintest hope for improvement. If bringing forth young is a normal condition of animal life, is it not a burning shame that man—the highest type of animals—should be the only one to suffer much danger in fulfilling the function of nature.

I heard it remarked by two eminent homœopathic physicians of St. Louis, that the worst cases they had to attend were

stout, thick-set women, with good appetites, who took a great-deal of exercise, and used strong diet. Now if these patients had lived on fruits, rice, potatoes, etc., the exercise would have been an advantage to them, and their children, because the sutures would have been less firm, and the fontanelles larger, thus allowing the head to adapt itself to the pelvis, and be moved forward by every pain. What accoucheur has not felt the great danger of rupture of the uterus, when the head becomes stationary in spite of the strongest pains? No physician will question the great importance of the fruit diet, in the above class of patients, neither do I think he will, with delicate ladies, when he faithfully tries its effects on them. If the patient cannot eat raw fruit, let her try dried, and cooked fruit, and have no fear, that she, or the embryo, will starve. An orange will often relieve sick stomach. I think it would be a good rule, not to eat fruit after 3 P. M., but if the appetite requires anything, toast, rice, crackers, or any light food to appease hunger, and not to eat anything three or four hours before going to bed. Many successful cases are reported from following the fruit diet, and the health of all the patients were improved, in a ratio, with their strict compliance with the fruit diet, and out-door exercise. I call it fruit diet, because the patients subsists almost entirely on fruit—but they use sago, tapioca, rice, young meat, (veal, lamb, fowls,) and vegetables. No milk is allowed, and no drink, except tea, and lemonade made with distilled water. It is stated that fruits on average are two hundred times less ossifying than wheat. Besides the phosphates to be eschewed, are all condiments, such as common salt, pepper, cinnamon, nutmeg, cloves, coffee, and cocoa. Hygienists exclude all the above condiments from their diet list, because they say that the system does not assimilate these, when taken in the crude state; that it is the function of the vegetable world, to take up inorganic matter, and organize it, before the animal system can appropriate it. This was tested by the old school, with the celebrated James' powder; its actions varied so,—sometimes being very active, and at others inert, that it was discarded from the U. S. Pharmacopœia, upon the revision of 1830. When this powder is

made with Tersulphate of Antimony, and *Horn Shavings, or bone—phosphate of lime*, it is a very valuable medicine in old school practice—but when made of Tartarized Antimony, *Phosphate of Soda*, and *Chloride of Calcium*, its action is entirely different; so that it is stated in the U. S. Dispensatory of 1870, "it is doubtful whether the phosphate of lime adds anything to its efficacy." It is for this reason, that our results are more satisfactory, with chemically the same medicine, viz: Calcarea Ostrearum, instead of Carbonate of Lime, as used by the old school. Phosphate of lime should be made from sheep bones. Doubtless many minerals act as physic per se, but none of them as nutritious remedies, unless first organized by the vegetable kingdom. Poor, anæmic children while teething, can be greatly benefited by Lacto-phosphate of *lime, made from the bones of sheep or cattle.*

It is claimed for the first diet, that it prevents indigestion, and nausea; it avoids the dangers of plethora, and it prevents too great a hardening of the bones of the embryo. They say truly, that "pregnancy is a state of health, not of disease, and suffering." As an adjunct to this diet, exercise in the open air, and sitz-bath play an important part. The sitz-bath is said to relieve pruritus—the bath to be taken as often as the symptoms occur—relieves flatulency, and is claimed that it will relieve headache, also congestion of the pelvic viscera, piles, etc. The bath should never be taken on a full stomach; the best time perhaps, is just before retiring; blankets should be thrown over the shoulders, and the patient's spine rubbed by the bare hand of an attendant. The bath should never shock the patient; perhaps 90° F. would be comfortable. These baths can be taken daily if found agreeable to the patient. Of course as soon as the child is born, all this diet is changed, and *that* containing the phosphates is substituted; one of the chief of these is milk. As it is known that the mother will loose her teeth, if she does not supply earthy matter in excess of the needs of her own system, it is necessary to urge her to eat cracked wheat, oatmeal, etc., freely.

As to the prophylactic treatment, instituted by Grauvogl to

prevent hydrocephalus acutus, and of which he speaks with so much praise—and I think deservedly, namely: *Sulphur* and *Calc. Phos.*, should never be neglected by the homœopathic physician, A few years ago, Dr. P. Baker of Kansas City, had a little patient born, with an abscess opened into the spinal marrow—of course the child died in a few weeks. During the next pregnancy of the mother, he put her on *Sulph.*[6] and *Calc. Phos.*[6]—result a healthy child. Dr. Bahrenberg of this city, told me of a patient of his, who had to be delivered with forceps, and who had great trouble in her confinements. From the use of *Sulph.*,[200] *Calc. phos.*[200] and *Sepia*,[200] she had such an easy labor, that she was attended by a midwife.

Croserio says: "A distinguished physician has just published a very interesting memoir upon this subject, in which he recommends giving to the mother, at different periods of pregnancy and at long intervals, *Sulph.*[30th] and *Calc. carb.*, to purify the fœtus from the psoric (scrofulous, R.) taint which it may have inherited from its parents. He cites in support of this proposition many observations of mothers all of whose infants had either died at an early age, or had been attacked with serious scrofulous affections, until they had been subjected, during pregnancy, to this preservative treatment, after which they brought forth robust children who had regular and full growth. I cannot too much recommend that the greatest attention should be given to the constitution and to the slightest symptoms of the pregnant woman, whose health has not been previously good, in order to administer the medicines proper to her case, because in this manner, beside the relief to the mother, we obtain an improvement in the constitution of the child about to be born, and for whom we prepare a robust health. It is thus that we shall succeed in regenerating the human race. If the father has had veneral diseases badly cured, above all if there still continues a slight almost imperceptible gleet, we may presume the mother infected, and give her a high potency of *Merc. sol.*, (*or Hydrastis can.*, R.;) if either of the parents have had the itch or tetter, of which they still give signs, we should give the mother *Sulph.*, also of a high potency, or other antipsorics homœo-

pathic to the actual or commemorative symptoms." (Other remedies as Aurum and Nitric Acid should also be given when there exists a syphilitic taint. In mothers of a tuburcular tendency, Kali carb., Phos., Silecia and Stannum should be prescribed, R.)

I have tried the fruit diet, hip-baths, and the medicines, above mentioned in three cases. In the first case I treated her first child, the last two summers, for cholera infantum, and chronic diarrhœa. This patient observed the treatment pretty closely, and though she resided only four squares from my office, and said she sent for me, before she undressed, when I arrived at the house, the child was born. She said, she had only three strong pains. I reached her house in less than fifteen minutes after being called. The child is nearly four months old, and has been very healthy thus far.

The second lady had nine children previous to this, two last were still born, and all the rest were revived with great difficulty; but at this time the child cried as soon as born, she never had such a comfortable time and nice recovery. The labor was easy, but there was adhesion of the placenta, and considerable hæmorrhage, but this patient did not strictly adhere to the treatment. Her child, unfortunately, has to be raised on cow's milk, but is doing very well. The third case was a very easy and quick confinement. Her previous child had to be delivered with forceps, on account of the very large, unyielding head of the child, the mother having subsisted on graham flour and cracked wheat, during the embryo period. I think physicians pay too little attention to the diet of their patients. Dr. G. S. Walker has been using the fruit diet for three years, with most satisfactory results.

Dr. Wm. Collinson reports the two following cases, out of about thirty, in which he has tried it, with like results:

Case No. 1. Mrs. N—— with her first labor, had much suffering—case very tedious—lasting three days; accompanied with convulsions which lasted many hours after the birth of child.

Finding herself pregnant a second time, she came in the second month, for advice for nausea and vomiting. I gave her nine powders of Conium, 3x, and instructed her to report in eight or ten days, which she did, and at that time received another prescription, but with the direction not to use it, unless the vomiting returned.

In accordance with my instructions, she commenced at the fourth month with the following diet, which was followed till full term: fruits, tapioca, mutton broth, veal and lamb, in small quantities. All articles containing phosphate of lime being excluded; the object being to prevent the ossification of the bones of the child and gaining besides the greater relaxation of the parts of the mother. With the exception of a bad cold and cough about the sixth month, patient said she had never enjoyed better health. From the sixth month she took Cauloph, 3x, on alternate weeks, till term. The labor did not last over an hour altogether, and had only two severe pains Very fine healthy baby, nine and one-half pounds.

Patient made a very quick and splendid recovery, and grew strong and healthy. This lady was very particular in following all the directions given respecting diet.

Case No. 2. Mrs. C—— consulted me at seventh month about her condition; was suffering from sick stomach, and heartburn, almost unbearable, and with distressing pains all over, in fact she said her life was a burden. Had never been under homœopathic treatment. Up to the time of her coming to me, had eaten mostly potatoes, bread and butter, with occasionally a little meat, from the commencement of her pregnancy. Tried to correct her diet, and the medicine given relieved many of her symptoms, but her friends overruled her diet—and the result was a most distressing case of labor, lasting 48 hours, and although the pains were good, and kept up well, the head would advance to the inferior strait, and then recede again, and again, until finally she had to be delivered with forceps. She made a very slow recovery. The child died on the 10th day, with Erysipelas, produced from laceration on the occipital portion of head, and over the superior portion of spinal column. During

the next pregnancy, she consulted me at the third month for vomiting and diarrhœa. She said she would rather die than go through, what she had done before. I relieved her symptoms with N. vom. and recommended the same diet as in the previous case. She improved in health, during her whole pregnancy. During the last three months, I gave her Cauloph., 2x, 6 drops night and morning, on account of an unbearable tightness all through the body. She had a very easy labor, and made a good recovery.*

Dr. Holbrook says:

"Bathing, like eating, should be agreeable. For healthy people, and properly managed, it is agreeable. Accordingly, the bath should be cold, tepid, warm, or hot; full or partial; by plunge, sponge, douche, sitz, etc.; at rising, before meals, or at bed-time, and so on, as the condition and characteristics of the individual require."

The Sitz-bath.—"Pregnant women receive much benefit from a constant use of this bath. A small tub of sufficient size, set upon a very low stool, or anything by which it may be raised a few inches, is quite sufficient. Unpainted wood is the best material, metal being unpleasant and cold. The water is used from one to five or six inches deep. The length of time this bath is used varies from a few minutes to two hours or more. To avoid exposure to cold, it is best to uncover only the part of the person to be exposed to the water. This bath has the effect of strengthening the nerves, or drawing the blood and humors from the head, chest, and abdomen, and of relieving pain and flatulency; and is of the utmost value to those of sedentary habits. It is sometimes well to take a foot bath, tepid or cold, at the same time. If a *large* quantity of cold water is used in this bath, it would remain cold too long, and thus drive the blood to the head and upper parts of the body, which might be very injurious; but the small quantity used at once

*Books to consult on the above subjects are: Drs. Cowan's "Science of a new Life," Ellis' "Avoidable causes of Disease," Bellows' Works, Verdi's Works, Ruddock's "Essentials of Diet," Holbrook's "Parturition without Pain," and Mr. Fernald's "First Causes of Character," and also O. S. Fowler's Works.

becomes warm, and thus admits of speedy reaction. In some local diseases of the lower parts, where there is inflammation, and the cold water feels most agreeable, the water is frequently changed. If there is any inclination to headache, or too much heat in the head, a cold bandage upon the forehead or temples is good. It is often well to rub the abdomen briskly during this bath. The sitz-bath may be used by any person, whether in health or otherwise, without the slightest fear of taking cold. Let those subject to giddiness, headaches, or congestion of the blood in the upper regions, try this, and they will at once perceive its utility."

The tub or bath used for this purpose should be large enough to admit of rubbing the person, if desirable. It will be found a great convenience to raise it a few inches from the floor. Care should be taken not to use the sitz-bath while the stomach is fully occupied in digestion, as the call made upon the skin and circulation by the bath diverts too much of the vital power from the stomach. In his *Water Cure Manual*, Dr. Shew thus sums up the uses of the sitz-bath:

"As a tonic to the stomach, liver, bowels, womb, spine, etc., this bath is highly useful. In constipation and other irregularities it is famous. Those of sedentary habits will find its use of rare service. For the tonic effect, it is taken for from ten to twenty-five minutes or more. If it is continued some length of time, the water is to be changed once or more, as it would otherwise become too warm."

"In pregnancy, besides general ablutions, the semi-daily use of this bath is productive of great good. In those troublesome itchings (*pruritus pudendi*,) this application should be made as often as the symptoms occur, and the remedy will be found a sovereign one."

"In piles and hemorrhoids the cold hip-bath is used, and in all acute diseases of the genital organs."

The best time in the day for the sitz-bath is just before retiring for the night. Probably the best temperature for the water is 90° F. No shock should be given to the system, and the bath should be so arranged as to be entirely comfortable.

It is well, while in the bath, to have an attendant rub thoroughly but gently the back, from the shoulders down to the hips, with the bare hand, and also the sides of the abdomen. Besides the general tonic effect upon the whole system, this practice, strengthens all the muscles of those parts greatly, and relieves any congestion that may have been caused by clothing or other means. We have never known a woman who used the sitz-bath properly during pregnancy but found great benefit from it.

Fruit diet.—In 1841, there was privately printed in England, a small pamphlet of twenty-two pages, in which a gentleman who was a chemist, gave an account of an experiment he himself tried in the case of his wife, whose labors had been so excessively painful that there was much reason to fear that she would not survive the next one. The result was so favorable that he felt it his duty to publish it with his name and residence.

A few experiments were made in Boston and vicinity with distinguished success; when the discovery of Ether rather threw it in the shade. As, however, there are persons, especially out of New England, who do not use Ether, the following extracts are made from the pamphlet in question, which has now become very scarce, and indeed, practically inaccessible. It will be best to begin by stating the principle of the system, with which the experimenter ends his account. In proportion as a woman subsists during pregnancy upon aliment which is free from earthy and bony matter, will she avoid pain and danger in delivery, hence the more ripe fruit, acid fruit in particular, and the less of other kinds of food, but particularly of bread or pastry of any kind, is consumed the less will be the danger and sufferings of child-birth.

The subject of this experiment had, within three years, given birth to two children; and not only suffered extremely in the parturition, but for two or three months previous to delivery her general health was very indifferent; her lower extremities exceedingly enlarged and painful; the veins so full and prominent as to be almost bursting; in fact, to prevent such a catastrophe, bandages had to be applied; and for the few last weeks of gestation her size and weight were such as to prevent her attending to her

usual duties. She had on this occasion, two years and a half after her last delivery, advanced full seven months in pregnancy before she commenced the experiment at her husband's earnest instance; her legs and feet were as before, considerably swollen, the veins distended and knotty, and her health diminishing.

She commenced by eating an apple and an orange the first thing in the morning and again at night. This was continued for about four days, when she took just before breakfast in addition to the apple and orange, the juice of a lemon mixed with sugar, and at breakfast two or three roasted apples, taking a very small quantity of her usual food, viz., wheaten bread and butter. During the forenoon she took an orange or two and an apple, For dinner she took fish or flesh in a small quantity, and potatoes, greens, and apples—the apples sometimes peeled and cut into pieces; sometimes boiled along with the potatoes; sometimes roasted before the fire, and afterward mixed with sugar. In the afternoon she sucked an orange or ate an apple or some grapes, and always took some lemon-juice mixed with sugar or treacle. At first the fruits acted strongly on the stomach and intestines, but this soon ceased, and she could take several lemons without inconvenience. For supper she had again roasted apples or a few oranges, and rice or sago boiled in milk; sometimes the apples peeled and cored, were boiled with the rice and sago. On several occasions she took for supper apples and raisins, or figs with an orange cut among them, and sometimes all stewed together. Two or three times a week she took a teaspoonful of a mixture made of the juice of two oranges, one lemon, half a pound of grapes, and a quarter of a pound of sugar or treacle. The sugar or treacle served mainly to cover the taste of the acids, but all saccharine matter is very nutritious. The object in giving these acids was to dissolve as much as possible the earthy or bony matter which she had taken with her food in the first seven months of her pregnancy.

She continued in this course for six weeks, when to her surprise and satisfaction, the swelled and prominent state of the veins, which existed before she began, had entirely subsided; her legs and feet, which were also swollen considerably, had

returned to their former state; and she became so light and active, she could run up and down a flight of more than twenty stairs with more ease than usual when she was perfectly well. Her health became unwontedly excellent, and scarcely an ache or a pain affected her up to the night of her delivery. Even her breasts, which at the time she commenced the experiment, as well as during her former pregnancies, were sore and tender, became entirely free from pain, and remained in the very best condition after her delivery also, and during her nursing.

At nine o'clock on the evening of March 3d, after having cleaned her apartments, she was in the adjoining yard shaking her own carpets, which she did with as much ease as any one else could have done. At half-past ten she said she believed her "time was come," and the accoucheur was sent for. At one o'clock the surgeon had left the room. He knew nothing of the experiments being made, but on being asked, on paper, by the husband two days afterward, if he "could pronounce it as safe and as easy a delivery as he generally met with," he replied, on paper, "I hereby testify that I attended Mrs. Rowbotham on the 3d instant, and that she had a safe labor, and more easy than I generally meet with." On his asking the female midwife if she thought it as easy as usual, she replied, "Why! I should say that a more easy labor I never witnessed —I never saw such a thing, and I have been at a great many labors in my time."

The child, a boy, was finely proportioned and exceedingly soft, *his bones being all in gristle*, but he became of large size and very graceful, athletic, and strong as he grew up. The diet of his mother was immediately changed on his birth, and she ate bread and milk and all articles of food in which phosphate of lime is to be found, and which had been left out before. She also got up from her confinement immediately and well. Mr. Rowbotham made a table of substances, with the proportion of phosphate of lime in each, so that it may be avoided in the food during pregnancy, and used afterward in nursing, when the bones and teeth of the child are made.

Beans, rye, oats, barley, *have not so much earthy* matter as wheat. Potatoes and peas not more than *half as much;* flesh of fowls and young animals *one-tenth;* rice, sago, fish, eggs, etc., *still less;* cheese, *one-twentieth;* cabbage, savoy, broccoli, artichokes, coleworts, asparagus, endives, rhubarb, cauliflower, celery, and fresh vegetables generally *one-fifteenth*; turnips, carrots, onions, radishes, garlic, parsley, spinage, small salad, lettuce, cucumbers, leeks, beet-root, parsnips, mangel-wurzel, mushrooms, vegetable marrows, and all kinds of herbs and flowers, average less than *one-fifth;* apples, pears, plums, cherries, strawberries, gooseberries, raspberries, cranberries, blackberries, huckleberries, currants, melons, olives, peaches, apricots, pineapples, nectarines, pomegranates, dates, prunes, raisins, figs, lemons, limes, oranges, and grapes, on the average are *two hundred times less* ossifying than bread or anything else prepared of wheaten flour.

Some articles, as honey, treacle, sugar, butter, oil, vinegar, and alcohol, if unadulterated, are quite free from earthy matter. But still worse than wheaten flour is common salt, and nearly as bad are pepper, cinnamon, nutmeg, cloves, ginger, coffee, cocoa, Turkey rhubarb, liquorice, lentils, cinchona or Peruvian barks, cascarilla, sarsaparilla, and gentian.

With regard to drinks, no water except rain and snow, as it falls, and distilled water, is free from earthy matter, and every family should have a distilling apparatus; and perhaps it would pay capitalists to form a company for the purpose of distilling water on a large scale. Filtering water is not sufficient to purify it of earthy matter, because a filter can only remove such particles as are mechanically mixed.

An American lady, who usually suffered terribly in labor, immediately procured the pamphlet and governed her diet by it partially, and had the easiest labor she had ever had. Another, who governed herself *wholly* by it, from the first moment she was aware of being pregnant, like the English lady, never experienced a moment's discomfort before delivery. She had taken nothing made of our grains, but confined herself to the West Indian ones—rice, sago, tapioca; and taking a disgust to our summer fruits, subsisted largely on oranges, tamarinds,

marmalades, and also took a great many lemons. At first, the fruits made her bowels too loose, but she did not abandon them on that account, but took mutton broth with rice in it, to correct this effect. She also took fish and sardines, and the young of meats; for the older animals are, the greater quantity of earthy matter is contained in their secretions, and so it is even with milk. She had so little thirst that she drank nothing but a little tea made with distilled water. This lady and her husband were neither of them very young—she was thirty-five and he forty at the birth of her eldest child; and she had been an invalid in her chamber from fifteen to thirty years of her life, though very well at the time of her pregnancy, and for the first time in her life taking much exercise in the open air. Consequently, and because of her extreme nervous delicacy, she did not escape pain in the labor the first time, and the process was several hours. But in the two succeeding times, at the last of which she was forty, the labors were very short and not at all severe. In all the cases she rigidly adhered to the diet, without a single day's exception; and her three children were perfectly splendid instances of large, healthy, strong, and beautiful *physique*. The youngest of them is now eighteen years of age.

A common error is, that, during gestation, the mother needs to "eat for two;" that is, that more food is necessary to support properly herself and her growing infant than at other times. This is a thorough delusion. On this point, and on diet during pregnancy generally, Dr. Bull, the very sensible and experienced English physician who has been already referred to, says:

"We habitually take more food than is strictly required for the demands of the body; we therefore daily make more blood than is usually wanted for its support. A superfluity amply sufficient for the nourishment of the child is thus furnished—for a very small quantity is requisite—without the mother, on the one hand, feeling the demand to be oppressive, and on the other, without a freer indulgence of food being necessary to provide it. Nature herself corroborates this opinion; indeed, she solicits a reduction in the quantity of support rather than asks an increase of it; for almost the very first evidence of pregnancy

is the morning sickness, which would seem to declare that the system requires reduction rather than increase, or why should this subduing process be instituted? The consequences, too, which inevitably follow the free indulgence of a capricious, and what will afterward grow into a voracious appetite, decidedly favor this opinion; for the severest and most trying cases of indigestion are by these means induced, the general health of the female disturbed and more or less impaired, and through it the growth and vigor of the child. . . . .

"If the appetite in the earlier months, from the presence of morning sickness, is variable and capricious, let her not be persuaded to humor and feed its waywardness from the belief that it is necessary to do so; for if she does, she may depend upon it, from such indulgence, it will soon require a larger and more ample supply than is compatible with her own health or that of her little one.

"If the general health, before pregnancy, was delicate and feeble, and, as a consequence of this state, becomes invigorated, and the powers of digestion increase, a larger supply of nourishment is demanded, and may be met in such case without fear; for instead of being injurious, it will be useful. . . . .

"Lastly, a woman, toward the conclusion of pregnancy, should be particularly careful not to be persuaded to eat in the proportion of two persons, for it may not only bring on vomiting, heartburn, constipation, etc., but will contribute, from the accumulation of impurities in the lower bowel, to the difficulties of labor."

A few figures given by Dr. Dewees, whose discussion of this subject is exactly in harmony with Dr. Bull's, show very clearly the absurdity of the idea that it is necessary to "eat for two." They are in substance as follows:

On an average, a new-born child, together with all the accompanying materials expelled at birth, weighs not more than ten pounds, viz., eight pounds for the child itself, and two pounds for the placenta, etc. A table of 7077 births in Paris gave an average of about two pounds less than this, being for the child

itself just six pounds. Now, a daily supply of less than three-quarters of an ounce, during the average two hundred and eighty days of pregnancy, will amount to this ten pounds; and this daily supply is decidedly less than the average quantity of unnecessary food which is usually eaten. Since, therefore, we almost always eat too much, and since the ordinary overplus is more than enough to supply the requirements of pregnancy, and particularly since the natural symptoms of that state usually indicate less food rather than more, it is mere common sense to conclude that pregnant women neither *want* nor *need* to "eat for two." The fact is more likely to be the seeming paradox that enough for one is too much for two; *i. e.*, that less food than usual, rather than more, is best during pregnancy.

Regularity in hours of eating is advantageous to the health; and more care even than usual should be taken during pregnancy to observe this practice. Another almost or quite equally important rule is, to eat nothing for four hours, or at least for three hours, before going to bed.

Eating should also be—as, indeed, it should always be—in moderation. It should be deliberate, and it should be cheerful. Deliberation is almost indispensable to moderation; for it is the sense of satisfaction of hunger that tells us when to stop eating, and this sense is blunted and almost useless when the food is swallowed rapidly and without thorough chewing. And the appetizing effect and healthful stimulus of cheerfulness at meals is too well known to require any detailed enforcement in this place.

I once heard a physician object to the fruit diet on the ground that it would not give enough strength to the pregnant woman to undergo the severe trial of parturition. But if the trial be robbed of its severity, where is the need of the extra strength? Again, what strength is imparted by rich, strong animal food that is ejected from the stomach, or else passes out of the system undigested and unassimilated? Or, if this food be digested and assimilated, what is the result? Why, plethora, that most dreaded foe of the pregnant woman, leading either to

miscarriage or to a terrible confinement, in which the chances of death are greatly augmented.

Dr. Verdi says, in his advice to mothers:

"It will do no harm to avoid what is repugnant to you, but it may be detrimental to your health to satisfy the longing for slate-pencil, chalk, or other deleterious substances which sometimes women in your condition crave.

"But above all, keep a cheerful mind and do not yield to grief, jealousy, hatred, discontent, or any perversion of disposition. It is true that your very condition makes you more sensitive and irritable, still, knowing this, control your feelings with all your moral strength.

"If you believe that strong impressions upon the mother's mind may communicate themselves to the fœtus, producing marks, deformity, etc., how much more should you believe that irritability, anger, repinings, and spiritual disorders, may be impressed upon your child's moral and mental nature, rendering it weakly or nervous, passionate or morose, or in some sad way a reproduction of your own evil feelings. And, indeed, this is more frequently found to be the case than is the physical marking of a child by its mother's impressions."

If a woman needs culture and expansion, both of her perceptions and conceptions of the beautiful, in order to produce a grand poem or painting or sculpture, or to conceive noble measures for the relief of the suffering of others, then does she also need all these for that highest of all her efforts, when it seems as every fibre of her being was put upon the stretch to do its share in the grand donation—to love and to humanity—of a child.

Summary.—It appears then that painless parturition may be secured by attention to the following points during pregnancy (besides correct previous bringing up, moral, mental, and physical):

Moderate healthful exercise, and avoidance of shocks, fatigue, and over-exertion.

Comfortable or at least quiet and patient mental condition, avoiding all bad tempers.

Amusement and agreeable occupation as far as possible.

Judicious use of bathing, particularly of the sitz-bath.

The fruit diet, and avoidance of unsuitable food, and of alcoholic, narcotic, and other stimulants.

Watchfulness and prompt treatment of the various ailments of the situation, should they appear.

Cheerfulness on the part of the patient, and kindness and indulgence by the husband and friends.

The use of chloroform, if required, at delivery.

PART III.

PARTURITION.

CHAPTER I.

LABOR.

By labor is meant the evacuation of the contents of the gravid uterus at term of nine calendar or ten lunar months. Various authors have devised tables for the calculation of the probable duration of pregnancy, but none have, in my estimation, improved on the plan of computation, offered by Meigs, which is, *count three months backwards from the last day of the catamenia.*

It is usual in works on obstetrics to devote a chapter to the causes of labor, but I believe all that is known of the causes of labor can be summed up in a very few words. Labor usually comes on about the time for the return of the tenth menstrual period, and is not dependent on any intelligence or aid on the part of the fœtus but is produced solely by uterine contractions. No theories that have been advanced as to the cause, are in the least satisfactory, and we have remaining only the fact that the human embryo at maturity, like ripe fruit, is separated from the parent stem.

Symptoms of Labor.—About the last fortnight of gestation there is a subsidence of the abdominal tumor, the fundus tilts, forwards and sinks lower; this generally relieves any dyspnœa, vomiting or other symptoms that may have resulted from pressure on the stomach or lungs; there may, however, result from the descent, dysuria and other vesical complications. Next there is observed, at times, a momentary squeezing sensation, during which the uterus feels harder than in the intrim;

these are the so called *fibrilar* of *painless uterine contractions*, and serve to dilate the cervix and os to a certain extent before active pains make their appearance. It is in these cases that delivery sometimes occurs in three or four pains. The next symptoms are an increase in the secretions and discharge from the vagina. This discharge is composed of mucus, tinged with blood, and is known as the *show*.

False pains.—Painful uterine contractions are often present, which, however, have no effect in dilating the cervix. In some cases they are frequent and severe, and are very apt to be mistaken for the commencement of real labor. Such "false pains," as they are termed, are often excited and kept up by local irritations, such as a loaded and disordered state of the intestinal canal; and they frequently give rise to considerable distress, and much inconvenience both to the patient and practitioner. They are, it should be remembered, only the normal contractions of the uterus, intensified and accompanied with pain.

False pains are chiefly characterized by their irregularity, sometimes coming on at short intervals, sometimes with many hours between them; they also vary much in intensity, some being very sharp and painful, while others are slight and transient. In these respects they differ from the *true* pains of the first stage, which are at first slight and short, and gradually recur with increased force and regularity. The situation of the two kinds of pains also varies, the false pains being chiefly situated in front, while the true pains are mostly felt in the back, and gradually shoot round towards the abdomen. Nothing short of a vaginal examination will enable us to clear up the diagnosis satisfactorily. If the labor have actually commenced, the os will be more or less dilated, and its edges thinned; while with each pain the cervix will become rigid and the membranes tense and prominent. The false pains, on the contrary, have no effect on the cervix, which remains flaccid and undilated; or, if the os be sufficiently open to admit the tip of the finger, the membranes will not become prominent during the contraction. Under such circumstances we may confidently assure the patient

that the pains are false, and measures should be taken to remove the irritation which produces them.

For facility of description, obstetricians have long been in the habit of dividing the course of labor into *stages*, which correspond pretty accurately with the natural sequence of events. For this purpose we generally talk of three stages: First, from the commencement of regular pains until the complete dilatation of the cervix; Second, from the complete dilatation of the cervix until the expulsion of the child; Third, the concluding stage, comprising the permanent contraction of the uterus and the separation and expulsion of the placenta.

First Stage, or Dilatation.—As labor actually commences, the uterine contractions become stronger, and the fact that they are "true" pains can be ascertained by their effect on the cervix. If a vaginal examination be made during one of these,the membranes will be felt to become tense and bulging during the pain, and the os uteri will be found partially dilated, and thinned at its edges. As labor advances, this effect on the os becomes more and more marked. At first the dilatation is very slight, perhaps not more than enough to admit the tip of the examining finger, and both the upper and lower orifices of the cervix can be made out. As the pains get stronger and more frequent, dilatation proceeds in the way already described, and the cervix gets more thin and tense, until we can feel a thin circular ring (which is lax between the pains, but becomes rigid and tense during the contraction, when the bag of water bulges through it), without any distinction between the upper and lower orifices. During this time the patient, although she may be suffering acutely, is generally able to sit up and walk about. The amount of pain experienced varies much according to the character of the patient. In emotional women of highly-developed nervous susceptibilities it is generally very great. They are restless, irritable, and desponding, and when the pain comes on cry out loudly. The character of the cry is peculiar and well marked during the first stage, and has constantly been described by obstetric writers as characteristic. It is acute and high, and is certainly very different from the deep groans of the

second stage, when the breath is involuntarily retained to assist the parturient effort. When dilatation is nearly completed, various reflex nervous phenomena often show themselves. One of these is nausea and vomiting; another is uncontrollable shivering, which is not accompanied by a sense of coldness, the patient being often hot and perspiring. Both these symptoms indicate that the propulsive stage will shortly commence; and they may be regarded as favorable rather than otherwise, although they are apt to alarm the patient and her friends. By this time the os is fully dilated, the membranes generally rupture spontaneously, and a considerable portion of the liquor amnii flows away. The head, if presenting, however, often acts as a sort of ball-valve, and, falling down on the aperture of the cervix, prevents the complete evacuation of the liquor amnii, which escapes by degrees during the rest of the labor, or is often retained in considerable quantity until the birth of the child.

It not frequently happens, if the membranes are somewhat tougher than usual, and the pains frequent and strong, that the fœtus is pushed through the pelvis, and even expelled, surrounded with membranes. When this occurs, the child is said to be born with a "caul," and this event would doubtless happen more frequently than it does, were it not the custom of the accoucheur to rupture the membranes artificially as soon as the os is completely opened up, after which time their integrity is no longer of any value.

Second Stage.—The os is now entirely retracted over the presenting part, and is no longer to be felt, the vagina and the uterine cavity forming a single canal. Now the mucous discharge is generally abundant, so that the examining finger brings away long strings of glary transparent mucus, tinged with blood. The pains, after a short interval of rest, become entirely altered in character. The uterus contracts tightly round the fœtus, the presenting part descends into the pelvis, and the true propulsive pains commence. The accessory muscles of parturition now come into play. With each pain the patient takes a deep inspiration, and thus fills the chest, so as

to give a *point d'appui* to the abdominal muscles. For the same reason she involuntarily seizes hold of some point of support, as the hand of a bystander, or a towel tied to the end of the bed, and at the same time pushes with her feet against the end of the bed, and so is able to bear down to advantage. The cries are no longer sharp and loud, but consist of a series of deep suppressed groans, which correspond to a succession of short expirations made during the straining effort. In this way the abdominal muscles contract forcibly on the uterus, which they further stimulate to action by pressing upon it. It is to be observed that these straining efforts are, to a considerable extent, under the control of the patient. By encouraging her to hold her breath and bear down, they can be intensified, while if we wish to lessen them we can advise her to call out; and when she does so the abdominal muscles have no longer a fixed point of action. Although the patient may thus lessen the effect of these accessory muscles, it is entirely out of her power to stop their action altogether. As labor advances, the head descends lower and lower, receding somewhat in the intervals between the pains, until eventually it comes down on the perineum, which it soon distends.

Birth of the Child.—The pains now get stronger and more frequent, often with scarcely a perceptible interval between them, until the perineum gets stretched by the advancing head. In the interval between the pains the elasticity of the perineal structures pushes the head upwards, so as to diminish the tension to which the perineum is subjected, the next pain again putting it on the stretch, and protruding the head a little further than before. By this alternate advance and recession, the gradual yielding of the structures is favored, and risk of laceration greatly diminished. During this time the pressure of the head mechanically empties the bowel of its contents. During the last pains, when the perineum is stretched to the utmost, the anal aperture is dilated, sometimes to the size of a five-shilling piece; and in this way the perineum is relaxed, just as the distension, and consequent risk of laceration, are at their maximum. The apex of the head now protrudes more and more

through the vulva, surrounded by the orifice of the vagina, and eventually it glides over the perineum and is expelled. The intensity of the suffering at this moment generally causes the patient to call out loudly. The force of the abdominal muscles is thus lessened at the last moment, and this, in combination with the relaxation of the sphincter ani, forms an admirable contrivance for lessening the risk of perineal injury. The rest of the body is generally expelled immediately by a single pain, and with it are discharged the remains of the liquor amnii, and some blood-clots from separation of the placenta; and so the second stage of labor terminates.

The *third stage* commences after the expulsion of the child. It is of paramount importance to the safety of the mother that it should be conducted in a natural and efficient manner; for it is now that the uterine sinues are closed, and the frail barrier by which nature effects this may be very readily interfered with, and serious and even fatal loss of blood ensue. Unfortunately, it is to often the case that the practitioner's entire attention is fixed on the expulsion of the child, so that the natural history of the rest of delivery is very generally imperfectly studied and understood.

As soon as the child is expelled, the uterine fibres contract in all directions, and the hand, following the uterus down, will find that it forms a firm rounded mass lying in the lower part of the abdominal cavity. By retraction of its internal surface, the placental attachments are generally separated, and the after-birth remains in the cavity of the uterus as a foreign body.

The escape of blood from the open mouths of the uterine sinuses is now prevented in two ways, viz: First by the contraction of the uterine walls, and the more firm, persistent, and tonic this is, the more certain is the immunity from hemorrhage; Second by the formation of coagula in the mouths of the vessels. Any undue haste in promoting the expulsion of the placenta tends to prevent the latter of these two hæmostatic safeguards, and is apt to be followed by loss of blood. After a certain time, averaging probably from a quarter to half an hour, the uterus will be felt to harden, and, if the case be solely left

to nature, what has been aptly called a miniature labor occurs. Pains come on, and the placenta is spontaneously expelled from the uterus, either into the canal of the vagina, or even externally. In most obstetric works it is stated that the after-birth may be separated either from its centre or edge, and that it is very generally expelled through the os in an inverted form, with its fœtal surface downwards, and folded transversely on itself. That this is the mode in which the placenta is often expelled, when traction on the cord is practiced, is a matter of certainty. It then passes through the os very much in the shape of an inverted umbrella. It is certain, however, that this is not the natural mechanism of its delivery. What this is has been well illustrated by Duncan, who has very clearly shown that, when this stage or labor is left entirely to nature, the separated placenta is expelled edgeways, its uterine and detached surface gliding along the inner surface of the uterus, the foldings of its structure being parallel to the long diameter of the uterine cavity. In this way it is expelled into the vagina, and during the process little or no hemorrhage occurs. When the placenta is drawn out in the way too generally practised, it obstructs the aperture of the os, and, acting like the piston of a pump, tends to promote hemorrhage. The corollaries as to treatment drawn from these facts will be subsequently considered. I am anxious, however, here to direct attention to nature's mechanism, because I believe there is no part of labor about the management of which erroneous views are more prevalent than that of this stage, and none in which they are more apt to lead to serious consequences; and unless the mode in which nature effects the expulsion of the placenta and prevents hemorrhage is thoroughly understood, we shall certainly fail in assisting her in a proper manner. In the large proportion of cases, when left entirely to themselves, the placenta would be retained, if not in the uterus, at any rate in the vagina, for a considerable time—possibly for several hours—and such delay would very unnecessarily tire the patience of the practitioner and be prejudicial to the patient. It is, therefore, our duty, in the majority of cases, to promote the expulsion of the after-birth; and when this is

properly and scientifically done, we increase, rather than diminish, the patient's safety and comfort. But, in order to do this, we must assist nature, and not act in opposition to her method, as is so often the case.

When once the placenta is expelled, the uterus contracts still more firmly, and, in a typical case, is felt just within the pelvic brim, hard and firm, and about the size of a man's fist. Generally for several hours, or even for one or two days, it occasionally relaxes and contracts, and these contractions give rise to the "after-pains" from which women often suffer much. The object of these pains is no doubt to expel any coagula that may remain in the uterus, and therefore, however unpleasant they may be to the patient, they must be considered, unless very excessive, to be salutary rather than otherwise.

CHAPTER II.

MANAGEMENT OF NATURAL LABOR.

Generally, no *active* assistance is necessary in natural labor, until after the birth of the child; all that is required of the attendant being, that he should remain an observant, though unofficious, spectator of the process;—ready to exert himself, with promptitude and energy, on the first accession of any alarming symptom; for although, in thirty-nine cases out of forty, little is required to be done beyond protecting the extended structures from injury, separating the child, and extracting the placenta from the vagina —after its total exclusion from the uterine cavity—still, in the fortieth, danger may occur, only to be arrested by the promptest, the most decisive, and most judiciously-directed help.

It can scarcely be necessary to insist on the obligation we lie under, to obey every summons to an obstetric patient as speedily as possible: for, even although a former one may have been lingering, it by no means follows that the subsequent labors should be of the same nature; and a practitioner must subject himself to much annoyance and blame, if, through remissness or negligence on his part, he should find the case terminated on his arrival. It is always right—however little is required to be done—that the medical attendant should be present during the chief period of the process, that he may be at hand to employ such means as any emergency may render requisite.

It is not often that we are called upon to choose the apartment in which the woman shall pass the puerperal month, as she is usually delivered in her own bed-room; but if that advantage be afforded us, we should make choice of one that is spacious and airy.

Nor, perhaps, are we generally expected to regulate the number of individuals to be present; though we may be called

upon occasionally to exercise our authority in this respect. Bearing in mind that the room should be kept as noiseless as possible, there are yet some attendants whose services we cannot dispense with. The only persons whom I would willingly admit are the nurse and some female married friend,—the mother, or other near relation, or an intimate acquaintance,—to act as *confidante* to the sufferer,—into whose sympathising ear she may whisper all her apprehensions and distresses, and from whom she may receive those numberless comforts and sustaining consolations of which she stands so eminently in need. Unmarried females are neither the most fit companions for the patient, nor the most useful assistants to the practitioner. In addition, it is proper that a servant should be in attendance in an adjoining room, or close at hand, that she may be ready to bring whatever may be wanted from a distant part of the house without delay; and she should have no duty imposed upon her for the time, except an obedience to the orders that may issue from the mistress' chamber.

On arriving at the patient's residence it is better not abruptly to obtrude one's-self into her presence, unless there be some immediate necessity for our attendance. On being ushered into her chamber, we may engage her in some general conversation, which will give us an opportunity of observing the frequency, duration, strength, and character of the pains; and our conduct must be framed accordingly. Should they be of trifling importance, we may content ourselves with giving some ordinary directions, and retire from the apartment. But if they are returning with frequency and activity, we must not allow much time to elapse before we require to make an examination *per vaginam*.

An objection may be raised by the patient to the necessary examination being then instituted, under the idea that no assistance can be rendered her so early in the labor. As I would regard the feelings of a parturient woman in a degree only secondary to her safety, I would by no means insist on putting her to this inconvenience, unless I thought it quite indispensable. But as much valuable information may be gained by

this first examination, and as it is highly desirable to obtain that information during the progress of the first stage, it is right, firmly but gently, to urge its propriety. It is seldom, indeed, that she will not accede to the recommendation of her medical attendant, provided he possesses her confidence, and conveys his request with becoming delicacy.

Much knowledge must be acquired during the first vaginal examination: it is, first, whether the woman be pregnant; secondly, if she be in labor; thirdly, whether the membranes have ruptured, or are still entire; fourthly, how the child is presenting: fifthly, how far the labor is advanced; and sixthly, the state of the os uteri, vagina, and perineum, in regard to their distensibility.

It may be thought superfluous to recommend that one of the points of inquiry should be whether pregnancy really exists, under the supposition that no woman could believe herself in labor unless she had approached near the termination of utero-gestation. But instances are daily occurring which prove the fallacy of this mode of reasoning: and on many occasions professional men have been in attendance for days and weeks, relying on their patient's assurances, perhaps often advanced, that she was with child, when it has turned out that she was mistaken. They have thus most undeservedly exposed themselves to some censure, or what is perhaps more mischievous than direct censure, to quizzical innuendos and sarcastic ridicule.

Many unhealthy actions will cause the abdomen to swell,—especially about the period of the cessation of the menstrual discharge,—and to simulate the general appearance of gestation; and even in the absence of pregnancy, spasms of different muscles may sometimes tolerably closely imitate, as to sensation, situation, and severity, the commencing pains of labor. While this gradual enlargement is going on, the woman will find no difficulty in persuading herself, or in being persuaded by others, that she is pregnant: and when the spasmodic pains set in, she will as readily conclude that labor has begun. Under such circumstances, the medical attendant has probably no opportunity

of forming a correct judgment, except from his personal observation at the time he is hastily summoned.

Provided the uterus be unimpregnated, the deception may generally be detected, simply by placing the hand on the abdomen; but if that proceeding does not afford the required information, an examination *per vaginam* can scarcely fail to prove satisfactory. On examining the abdomen externally, it will be found distended—perhaps from flatus pent up in the intestines—perhaps from fluid effused into the peritoneal cavity - or from the presence of some more solid tumor. We may distinguish that the swelling is softer or harder, larger or smaller, more diffused or more circumscribed, than is the bulk of the gravid uterus; that it is not of the same shape, is very likely irregular on its surface, does not occupy the same position, and, above all, that it does not possess that peculiar springy elasticity which so strongly characterises the impregnated womb at the end of the natural term of gestation. If there still remains any doubt, it is right to make a vaginal examination. Under this condition of *spurious pregnancy*, the os uteri will be found not only close, but undeveloped; the cervix not expanded; and the uterus itself, on poising it at the extremity of the finger, will be felt small, light, and movable;—provided, indeed, it be not diseased. If, on the contrary, the patient be pregnant, and near the end of the term, we shall find the os and cervix uteri fully developed and expanded, and perhaps the os uteri somewhat open; so that we may be able to detect the presence of a fœtus through the dilated mouth or thinned neck.

But the patient may be pregnant and not in labor,—the pains may be spurious and not true. If what has already advanced in regard to false pains be carefully studied, I trust there will be no great difficulty in forming a diagnosis. We will presume, as indeed we shall find most usually the case, that the patient, on our arrival, is in the first stage of labor, experiencing the dilating or *grinding* pains.

It is better that she should be undressed, excepting her nightclothes, and a dressing-gown; and that she should lie on a

mattress rather than a softer bed. She should be also covered by a light counterpane, or a blanket, and a sheet.

Position of the Patient.—The patient should be allowed the utmost freedom, as to position, especially during the first stage. I always permit her to sit, recline, or walk about, as she may prefer, except of course, during a vaginal examination, when she should be placed on the bed or cot in the supine or left semiprone position; I prefer, however, that the patient should be upon her back, her right side to the attendant, with the right leg flexed, so that you may introduce the right hand beneath it.

The vaginal examination is to be conducted in the following manner.—The attendant having anointed the two first fingers of his right hand with some unctuous substance, generally in readiness, is to place them on the labia externa; then, gently separating these organs, he must introduce the first finger into the vagina in the direction of its entrance, which is backwards and upwards: or he may take the perineum as his guide, and insinuate his finger within the genital fissure, posteriorly, close to the fourchette.

These examinations are commonly made during the urgency of pain; and this has given rise to the phrase of "trying a pain." It is, however, desirable, on many accounts, that we should not introduce our finger up to the os uteri at the time when the uterus is acting strongly; because then the membranes are protruded into the vagina, and if we press against them at that moment, we may probably rupture the cyst, and lose its influence in the after progress of the labor. Besides, it is impossible under such protrusion to ascertain the presenting part of the fœtus with precision, because of the quantity of water which is then interposed between our finger and its person. Nevertheless, as it is expected that we should examine while the uterus is in action,—and, indeed, as in many cases the patient would not allow us to pass our finger at all, were it not for the belief that we can assist her, and that only in the time of pain,—it is necessary that we should request her to inform us when there is

PLATE V

Fig. 1

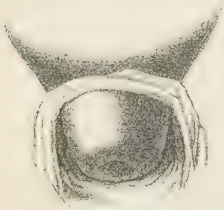


Fig. 2

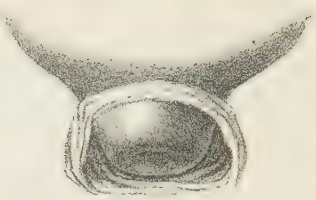


Fig. 3

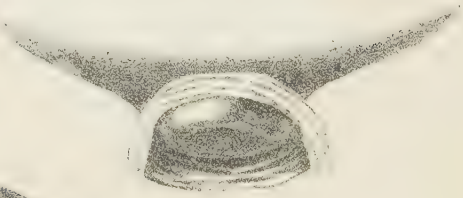
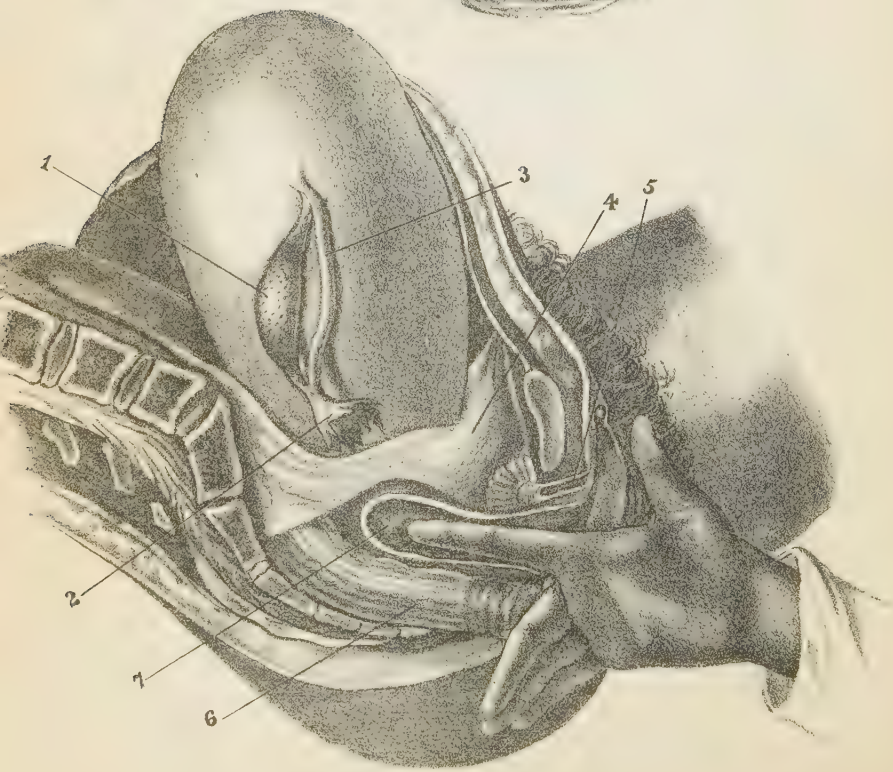


Fig. 4



Explanation of Plate Five.

Figures 1, 2 *and* 3 *show the changes undergone by the os and cervix uteri during gestation.*

Fig. 1 shows the condition at the third month.
Fig. 2 shows the condition at the sixth month.
Fig. 3 shows the condition at the ninth month.
Fig. 4 shows the manner of making a vaginal examination also locates the position of the various organs at the end of gestation, as follows: 1 the ovary, 2 the fembriated extremity of Fallopian tube, 3 the Fallopian tube, 4 the bladder, 5 the urethra, 6 the rectum, 7 the os uteri.

a return, and take that opportunity of introducing our finger within the external parts. Having gained this advantage, we must allow it to remain inactive in the vagina while the pain continues; and upon its cessation, which we have seldom any difficulty in ascertaining, we may direct it up to the os uteri.

The condition of that organ with respect to its actual dilatation, and its dilatability, whether the membranous cyst is ruptured or is still entire, the presentation of the child, and the degree of relaxation which the vagina and the perineum have already taken upon themselves, will all become matters of observation during this primary examination.

In regard to the first of these points, it is not always easy for a novice to distinguish the mouth of the womb at the commencement of labor. I have known many students attend a number of cases before they had been able to detect the os uteri by the feel, or satisfy themselves where it was situated. It will generally be met with about two inches or two inches and a half from the vulva, looking back towards the sacrum or coccyx.

Being satisfied that we feel the os uteri, we must next ascertain whether the membranous cyst has broken or not. It is not always easy to determine this point, either, in the *interval* of uterine contraction; because the membranes being then flaccid, retreat, together with the contained fluid, within the uterus; and there remains merely a thin skin, as it were, between the finger and the presenting part of the child; so slight, indeed, as scarcely to be perceptible to the touch. But as soon as pain returns, the soft wedge, if unbroken, is again felt protruding through the os uteri, and there is then no difficulty in detecting it. If, therefore, we have not been able to learn, in our first examination, whether or not the liquor amnii is evacuated—inasmuch as we have carried our finger up to the os uteri in the absence of pain,—we may take the opportunity of examining again when the next contraction comes on; and on passing the index finger up to the pelvic brim, while the pain is urgent,—most carefully, lest we should rupture the sac prema-

turely,—if we distinctly feel them protruding downwards into the vagina, we know that the membranes are still entire.

Again, it is of first importance that we should ascertain what part of the child presents, before the membranous rupture.

When the first examination has been made, the patient herself, and her friends, are always anxious to learn from her medical attendant if all be natural and satisfactory, and how long a time is likely to elapse before the labor will be terminated. With regard to the first question, if we have gained all the information which is required we should do, we may give a decided answer; but the second must be evaded. If we find the vagina distensible, the os uteri dilating, the head presenting, and the pains sufficiently active, we may reply with a positive assurance, that so far everything is favorable; that no case can afford a more auspicious promise than the one under our care; and that, therefore, we are warranted in anticipating a fortunate result. To the second question, let us not attempt a reply; let us take it for granted, after such a positive declaration of good tidings, that it will not be repeated; and, as society is at present constituted whoever obtains a plain, straight-forward answer to one out of two questions, ought to consider himself fairly dealt with. But if the party we are addressing thinks differently—which we shall most usually find the case—and presses the subject again on our attention, let us tell them plainly, they ought to remain content with the honest declaration we have given, that the case is progressing as favorable as possible; that it is out of the scope of human knowledge, and consequently quite out of the power of any human being, to say positively when the labor will be terminated. Any opinion we might form would be but a guess, at the best; and it is not fit that we should trust an answer, which may involve such serious disappointment, to conjecture. If we were to make a promise that the labor would be brought to a close either at noon or midnight, or any other specified moment, we might be disappointed in two ways. It is very unlikely that it should end just at the period of time we have mentioned; it might be earlier, and then an inference would be drawn, that we knew nothing about the case: but it is

also probable, that the time fixed upon will pass by, without our promise being fulfilled; it will then act most injuriously on the patient's mind; she loses confidence—that loss of confidence is attended with dejection—the nervous system is depressed—and the process of labor is more or less interfered with. By making promises of this kind, indeed, we may be the means of producing a lingering, painful, dangerous, an instrumental, and perhaps a fatal case. Upon such trifles, sometimes, does the welfare of our patient depend!

Frequent examination should not be made during the first stage of labor.—We can do no good by such a practice, after we have once gained the information we require; we cannot facilitate the descent of the child; we cannot dilate the parts; but we may do a great deal of injury; for we denude the vagina of that soft relaxing mucus which is designed by nature to protect it, and we moreover run the risk of destroying the integrity of the membranous cyst: we may, therefore, predispose the parts to inflammation, and retard the dilatation of the os uteri itself. As, however, it is a common idea among women that, under each examination, material assistance is rendered, we shall frequently be urged, during the first stage—especially if the labor be rather slower than usual—to remain in close attendance upon the patient's person; and these solicitations are generally advanced with a degree of fervency that it appears the extreme of cruelty not to accede to. Should this be the case, the finger may be introduced from time to time, with the greatest care and gentleness; more to pacify the patient's mind, and assure her she is not neglected, than with any other view beyond that, and also watching the progress of dilatation. The more rigid the parts are, the more do they require the softening influence of the natural secretion, and the more careful must we be to preserve it.

It sometimes happens, after the rupture of the membranes, from various causes, that the head does not present in complete flexion, and we will find, on these occasions, that the bregma and not the vertex is in the centre of the strait. As the pains will not act to as great advantage under these circumstances,

and the labor may be consequently delayed until the difficulty is remedied, it is evident that the accoucheur, acquainted with the mechanism of labor, can, by imitating the operations of nature, bring the case to a more speedy issue; hence in this case, complete flexion is wanting to bring the occipito-bregmatic circumference, instead of the occipito-fœtal, in coincidence with the plane of the superior strait. We can effect this by catching the ledges of the parietal bones where they overlap, and thus pull down the occiput, or, by placing two fingers on the forehead, keeping them there during uterine pains, and thus resisting the departure of the chin from the thorax, cause the occiput to descend.

This departure of the chin from the thorax may also retard rotation of the head, or it may be prevented by the stricture-like grasp of the neck of the fœtus by the os uteri. We can easily supply the deficiency in this case by grasping the occiput and causing it to make proper rotation.

Obliquities of the womb, which are often a cause of retardation in labor by vitiating the direction in which the forces act, may be remedied by altering the woman's position. These are trifles in labor, the sum of which make the difference between the skilful and experienced accoucheur and the ignorant charlatan blindly waiting upon the freaks of nature.

As soon as the head has come to press upon the external parts, particularly when it has made its turn, and is beginning to extend the structures at the outlet of the pelvis, it becomes our duty to take our seat by the bedside, and never to move from our position till the child has passed.

Supporting the Perineum.—This usually recommended procedure can, in my opinion, be more honored in the breach than the observance, especially if carried out as usually directed, *i. e.*, by making pressure with the hand or a folded napkin directly on the most distended portion. Any one can demonstrate the fallacy and danger of this procedure by taking a piece of india rubber and distending it to its utmost over a ball, when by bringing to bear an additional force to those already in operation, in the shape of pressure at the most prominent part, the

india rubber will, as a natural result of this extra force, be ruptured in the same manner as is, alas, to often the perineum.

It may, in some cases, become necessary to *relax* the perineum to prevent rupture; this is effected best, by gathering the adjacant tissues from either side and behind with the tips of the thumb and fingers on the sides and the ball of the hand posteriorly; this method will be found of great utility and far superior to the ordinary method. It may sometimes become necessary to introduce a finger into the rectum and pull forwards to produce sufficient relaxation.

Coiling of the funis around the neck.—It frequently happens that there is one; sometimes there are two, and occasionally three or four, folds of the navel-string coiled around the neck; and if it were not liberated, it is very possible that the pain which expels the shoulders might cause the placenta to be dragged away from its attachment, to the great peril of the mother, from hæmorrhage; (see page 166,) it might even cause an inversion of the uterus. If on its expulsion the cord be drawn tightly around the neck, the circulation through the funis will be arrested by the compression of the vessels; and the same compression may also close the trachea to such an extent, as to prevent the ingress of air into the lungs. Thus the two sources by which life is maintained being cut off at the same time, strangulation must be a necessary consequence.

The best way to free the funis from its awkward situation is by drawing down the loop, and passing it over the child's head, by which means we liberate it entirely, and it is no longer an impediment to the expulsion of the shoulders. But it occasionally happens, especially if the funis be more than once coiled round the neck, that it is not sufficiently long to allow its being pulled over the head: we may keep the loop distended with our fingers, until the shoulders are expelled, and they must be allowed to slip through it. In some cases it is not possible to carry into effect either of these modes of liberating the child; and it is necessary to cut the funis before applying a ligature, while the shoulders are still unborn. Such a proceeding, however, should be avoided if possible, because the

child might be strangled in its birth, if respiration were not perfectly established; or it might bleed to death, unless we were very careful to secure the umbilical vessels by compression with the finger and thumb until a ligature could be obtained.

Having wiped the face, and made an examination to ascertain that the funis is not twisted around the neck, we may again place the left hand on the perineum, while we direct the fœtal body rather forwards, in correspondence with the axis of the pelvic outlet, and receive it with the right.

It used to be the custom to surround the neck with the thumb and fingers of both hands, and forcibly extract the body the moment the head was in the world, for the purpose of liberating the woman from pain, and terminating the delivery as speedily as possible. Such practice is attended with double danger;—great chance of injury of the child, by the tension of the neck; and no small probability of hazard to the mother, by the uterus being prematurely emptied. It is thus left in a flaccid state; the stimulus which previously disposed it to contract is suddenly taken away; that disposition ceases, or is suspended; hæmorrhage is induced; a necessity probably arises for the artificial removal of the placenta; and incalculable mischief is the consequence.

The child being entirely in the world, it must be slowly removed to a little distance from the mother's body, not more than to the extent of four or five inches, and withdrawn from beneath the bed-clothes, the woman's person being still left perfectly covered and concealed. It has been already shown that the funis umbilicalis varies exceedingly in length, and that sometimes its measure has been known not to exceed half a foot. Now, should the cord be unusually short, and should we hastily draw away the infant to some extent, we shall *make a pluck* at the placenta; and we run the risk of tearing it away from its attachment, or, perhaps, of even inverting the uterus. If we find the cord sufficiently long to permit the further removal of the child's body, we may place it more entirely under our command; and after having lifted the bed-clothes from above it, so as to

bring its person completely into view, we may proceed to secure the vessels, and separate it from the mother.

The ligatures commonly employed consist of eight or ten pieces of thread, a skein of which is placed in readiness for our use. A sufficient number having been selected to form the proper thickness, a knot must be tied at each end; and this preparation should be made before the child is born.

Two of these ligatures should be prepared: one is to be applied about three fingers' breath—two inches—from the child's navel. A second must be placed nearer the placenta, at about the same distance from the first that the first is from the body of the infant; the funis is then to be divided between them. It is as well, previously to tying this second ligature, to squeeze as much of the blood as we can out of the space intervening between the two, up towards the placenta, lest, at the moment the division is made, some should be projected on our dress. Some practitioners do not tie the funis at all, some tie with only one ligature. I have tried all methods, and arrived at the conclusion, that while in the majority of cases no ill results follow the non-tying, still it is better to be on the safe side and ligate.

The funis should be divided by a pair of blunt-pointed scissors, to prevent the possibility of the infant being injured by the extremities of the blades.

Generally, the infant cries strongly as soon as it is born, and in such case the ligatures may be applied immediately. The rule I would lay down for the guidance of the student is nearly that directed by Hippocrates. I would recommend him not to put the ligature round the funis until the child has cried, or given some other unequivocal evidence of the proper change having taken place in the function of the lungs; unless, indeed, it be born with animation suspended, and he is desirous of using the warm bath, inflation of the lungs, and other resuscitating means, as speedily as possible.

The popular remedy, amongst nurses, of slapping the child's buttocks will sometimes succeed in producing a respiratory effort. Galvanism is a powerful means of resuscitation

when a proper apparatus is at hand. Other means of exciting respiration have been recommended, such as holding ammonia or burnt feathers to the nostrils, tickling the fauces with a feather, blowing into the opened mouth while holding the nostrils, dashing cold water on the body, etc. Care should always be taken in these cases to free the mouth or fauces from any mucus which may clog them.

The contact of cold air with the skin is a powerful stimulus to the respiratory act, and therefore the child's face should always be freely uncovered. The limbs should be rubbed with gentle pressure upwards, in order to promote the circulation by propelling the venous blood towards the heart.

The most efficient means of resuscitation is undoubtedly artificial respiration. To perform this, first place the infant briskly in the prone position, so as to clear the fauces of mucus or other fluids. Then place it in a sitting posture, and alternately raise it up by the arms and set it down again, about twenty times a minute. Each time that the child is set down the arms should be pressed gently against the sides and the head inclined forwards. These movements should be continued until the child breaths with regularity; and they should not be abandoned as hopeless, while the least pulsation of the heart is perceptible.

On the child being separated, it must be handed to a careful attendant; and we must be watchful that its mouth and nostrils are not covered so as to impede the ingress of air into its lungs—an accident not unlikely to happen from the too zealous attention of its new protectress, to prevent its taking cold.

The infant being carefully disposed of, we must pass our hand upon the patient's abdomen, before we leave our seat, for the purpose of ascertaining whether there be a second child or not; and whether the placenta is still retained within the uterus, or has escaped into the vaginal cavity.

If the uterus contain another fœtus, its fundus will be felt high up, above the umbilicus, and its general bulk will be almost as great as it was before the expulsion of the first. We shall be able to define it distinctly; it will present that peculiar elas-

ticity, and that degree of subdued fluctation, which are so characteristic of the gravid uterus towards the close of pregnancy.

Delivery of the Placenta.—Playfair says: "There is unquestionably no period of labor where skilled management is more important, and none in which mistakes are more frequently made. By proper care at this time, the risk of post-partum hemorrhage is reduced to a minimum, the efficient contraction of the uterus is secured, the amount and intensity of after-pains are lessened, and the safety and comfort of the patient greatly promoted. Moreover, the general practice as to the management of this stage is opposed to the natural mechanism of placenta expulsion, and is far from being well adapted to secure the important objects which we ought to have in view. Let us see what is the practice usually recommended and followed, and then we shall be in a position to understand in what respects it is erroneous. For this purpose I cannot do better than copy the directions contained in one of our most deservedly popular obstetric text-books,(Churchill) which undoubtedly expresses the usual practice in the management of this stage. 'When the binder is applied, the patient may be allowed to rest a while, if there is no flooding; after which, *when the uterus contracts*, gentle traction may be made by the funis, to ascertain if the placenta be detached. If so, and especially if it be in the vagina, it may be removed by continuing the traction steadily in the axis of the upper outlet at first, at the same time making pressure on the uterus.' "

"*Objections to Ordinary Practice.*—This may fairly be taken as a sufficiently accurate description of the practice that is usually followed. The objections I have to make are: (1) That it inculcates the common error of relying on the binder as a means of promoting uterine contraction, advising its application before the expulsion of the placenta; while I hold that the binder should never be applied until after the placenta is expelled, and not even then, unless we are certain that the uterus is perfectly and permanently contracted. (2) That it teaches that traction on the cord should be used as a means of withdrawing the placenta; while the uterus itself should be made to expel the after-birth, and in nineteen cases out of twenty the finger need never be in-

troduced into the vagina after the birth of the child, or the cord touched. This may seem an exaggerated statement to those who have accustomed themselves to the usual method of dealing with the placenta; but I feel confident that all who have learnt the method of expression of the placenta by proper manipulation of the uterus would testify to its accuracy.

"Before describing the method of the placental expression, a word of caution may be said against undue haste in attempting expression of the placenta, a mistake that is often made, and which, I believe, tends to increase the risk of post-partum hemorrhage. So long as we satisfy ourselves that the uterus is fairly contracted, so as to avoid the possibility of its distention with blood, a certain delay after the birth of the child is useful, from giving time for coagula to form within the uterine sinuses, by which their open mouths are closed up. The importance of this point has been specially dwelt upon by McClintock, who lays down the rule that fifteen or twenty minutes should be allowed to elapse, after the birth of the child, before any attempt to remove the after-birth is made. This I believe to be a good and safe practical rule, as it gives ample time for the complete detachment of the placenta, and the coagulation of the blood in the uterine sinuses."

Mode of Effecting Expulsion.—"During this interval the practitioner or nurse should sit by the bedside, with the hand on the uterus to secure contraction and prevent distention; but not kneading or forcibly compressing it. When we judge that a sufficient time has elapsed, we may proceed to effect expulsion. For this purpose the fundus should be grasped in the hollow of the left hand, the ulnar edge of the hand being well pressed down behind the fundus, and *when the uterus is felt to harden* strong and firm pressure should be made downwards and backwards in the axis of the pelvic brim. If this manœuvre be properly carried out, and sufficiently firm pressure made, in almost every case the uterus may be made to expel the placenta into the bed, along with any coagula that may be in its cavity (Fig. 25). The uterine surface of the placenta is generally expelled first, as is represented in the diagram, the cord being

within the membranes; whereas the fœtal surface, and the root of the cord, are the parts which appear first when the placenta

Fig. 25.

PLAYFAIR'S METHOD OF EXPELLING THE PLACENTA.

is removed by traction. If we do not succeed at the first effort, which is rarely the case if extrusion be not attempted to soon after the birth of the child, we may wait until another contraction takes place, and then re-apply the pressure. After a little practice, the placenta may be entirely expelled in this way, in nineteen cases out of twenty, without even touching the cord, and the bugbear of retained placenta will cease to be a source of dread.

Management of the Membranes.—Should we fail in causing the uterus to expel the placenta, a vaginal examination may be made, and, if the placenta be found lying entirely in the vagina, it may be carefully withdrawn. If, however, the cord can be traced up through the os, showing that the placenta is still within the uterine cavity, we must again resort to pressure to effect its expulsion, and not attempt to withdraw it by traction. Such cases may fairly be classed as retained placenta, but they should be very rarely met with, and are discussed elsewhere. When they do often occur in the hands of the same practitioner, it is fair to conclude that he has not properly acquired the art of

managing this stage of labor. Generally speaking, the placenta should be expelled within twenty minutes after the birth of the child; but no doubt in the large majority of cases, expulsion might be effected sooner were it advisable to attempt it.

When the mass of the placenta is expelled, the membranes generally still remain in the vagina, and they should be twisted into a rope, and very gently withdrawn, so as not to leave any portion behind.

Application of the Binder.—When we are satisfied that the uterus is permanently contracted, we may apply the binder; but this should rarely be done until at least half an hour after the birth of the child. The soiled clothes should be gently withdrawn from under the patient, moving her as little as possible, and the binder should be, at the same time, slipped under the body, taking care that it is passed well below the hips, so as to secure a firm hold of the body. No kind of bandage is better than a piece of stout sheeting, of sufficient breath to extend from the trochanters to the ensiform cartilage; a jack-towel or bolster-slip answers the purpose very well. These are preferable, at any rate at first, to the shaped binders that are often used. One or two folded napkins are generally placed over the uterus, so as to form a pad to keep up uterine pressure. Once in position, the binder is pulled tight, and fastened by pins. The utility of careful bandaging after delivery can scarcely be doubted, although some years ago it became the fashion to dispense with it. It gives a comfortable support to the lax abdominal walls, keeps up a certain amount of pressure on the uterus, and tends to restore the figure of the patient. After the bandage is applied, a warm napkin should be placed on the vulva, as a means of estimating the quantity of the discharge, and the patient may be allowed to rest.

Care of the New Born Infant.—Too often the physician is utterly ignorant of the duties of the nurse. Too frequently the little stranger, as soon as born, is rolled in flannel and placed by the mother's side, or on the lap of nurse or friend, its loud cries announcing to the household its advent, and here the phy-

sician leaves it, without directions to nurse or mother as to its further care or management.

It is not to be supposed that the physician is to wash and dress it, but he should be familiar with the entire care, and give directions to the nurse accordingly. You will not unfrequently be questioned by the nurse or the mother upon some or all of these points, and with them you must be familiar, if you would maintain a good name among those who employ your services.

Let us suppose the cord has been properly tied and severed, and the nurse is now at liberty to attend to the wants of the child. She should be made familiar, first, as to

Washing the Infant.—She should be provided with a soft sponge, Castile soap, sweet oil, and an abundance of warm water (96° or 98°). It is best that this *first* washing should not be protracted, that it may be *perfect* as to result. The one following will prove effectual wherein this one fails. Many infants are covered with a white, cheesy coating, *vernix cosceosa*—a secretion from the sebaceous follicles—which oftentimes is difficult to remove. Let the child be *well oiled or greased with lard* prior to washing, and the warm water, with soap, will readily remove it. The nurse must remember that the cutaneous surface is very delicate, and must be gently handled, lest abrasion occur. Such result often manifests itself after harsh handling, and is the cause of great discomfort to the little one. The surface should be thoroughly dried with a soft towel gently applied. There are various *powders* in use among nurses, some of them injurious from the means of scenting used by druggists. Finely levigated white lead has been used—itself a poison—and a case is recorded by Koop, in which death resulted from the use of this powder. Nothing better can be used than finely-powdered starch, and, if there is any excoriation, as there often is about the anus and vulva and groins, equal parts of powdered chalk and calamine (*zinci carbonas*) may be used with great benefit. Notice should be taken of the cord, that there is no bleeding from it after the child is washed. The nurse should direct her attention now to

Dressing the Infant.—They are exceedingly susceptible to the impressions of cold. There is a popular error, which

has led to not a few fatal results, that the child, even newly born, has great power of generating heat and resisting cold at birth, than at any time during life. This principle must be remembered and regarded, and, in a climate so variable as our own, the child should be carefully protected from cold and dampness. A soft flannel binder is placed around the belly of the child, fastened comfortably behind by tapes.

If in winter, the child's neck and arms should be covered. This delicate skin, which fond mothers are so anvious to display uncovered, is particularly sensitive to the action of cold, and you should impress it upon them, that it is a dangerous practice to allow bare neck and limbs. "A little more common sense, more sleeves, and sacks, and dresses, and less vanity and fashion," and mothers will have fewer little graves to weep over.

If in summer, the child should be kept cool, both by *day and night.* Inattention to this latter point leads largely to cholera infantum. Remember the simple rule laid down by Churchill: "As regards the dress, the infant requires *softness*, *looseness* and *warmth*, and as regards handling, *gentleness* and *dexterity*."

The child washed and dressed, you will be asked respecting the

Physic for the Child.—The beautiful harmony which Providence arranged in the action of the various organs of the body, and the wonderful display of His care and wisdom manifested in the entire construction of beings, is shown no less plainly in the secretion of the breasts, even from the very moment the mother gives birth to her child. In a healthy woman, from the birth of the infant, there is a secretion of the mammary glands. Though this secretion is different, during the first forty-eight, or even seventy-two hours, from that subsequent to this time, still it is evidently designed for the new-born babe. This peculiar secretion (during the first two or three days) is known as *colostrum*, differing from pure milk, from the fact that it contains even a larger amount of solid ingredients, and a large quantity of oily matter—oil globules. It fulfills two purposes. First, it affords, when freely secreted, ample nourishment for the child,

and secondly, it acts as a purgative, cleansing the bowels of that dark green matter first passed by the infant, known as meconium. Remembering this, it is best not to give any *physic* for the child.

Food for the Child.—How soon shall the infant be put to its mother's breast? You will often have this question asked you, and you have many excellent authorities to guide you.

I think it is safe to assert, that, provided the mother has passed through her labor without untoward symptoms, such as *unusual* pain and great fatigue, consequent upon lingering labor, the child should be given the mother to nurse within three or four hours after labor. Nurses and mothers will generally oppose you in this course, avowing "the child to starve;" "I have no milk;" "cannot we give it sugar and water?" Such remarks will constantly greet you in the lying-in room. The health and comfort of both mother and child lie to a great extent in your hands. *Mark out your rules plainly, and see that they are followed*, and, under the circumstances already noticed, let the child depend upon the mother's breast for nourishment. Should it be necessary, under other circumstances, to feed the child, the best and most convenient substitute is cow's milk. This should be diluted with an equal quantity of water, and a little sugar should be added, as the milk of the cow possesses less saccharine matter than is found in human milk. Care must be taken that the milk is of the proper temperature. It should be 95° or 96°. Be sure that sugar and water, molasses and water, catnip tea, etc.—remedies which the nurses are so fond of giving—are avoided. No child should be allowed to nurse oftener than once in two hours. As the mother commences in this regard, so she must continue.

Cleanliness of the Infant.—In its early life it should be bathed at least once in the twenty-four hours, in water from 96° to 98° Fahrenheit. The surface should be thoroughly dried, especially about the groins, perineum, and axillæ.

The discharges from the bladder and bowels, so frequent in early life, require as frequent change of diaper. This is too often overlooked by the nurse. Not only after each discharge

from the bowels, but after every one from the bladder, the child should have applied a clean, dry diaper—not one that has been soiled by urine and then hung before the fire or beneath the sun's rays to dry without having been washed; it is the application of these that causes nearly all the abraded and excoriated perineums and vulva of children, many cases of which are extremely distressing. Should such a case present itself to your notice, inquire into this matter, and you will almost always find its cause. Every diaper should be properly washed prior to use, and in no room in which are confined mother and child, should be hung the soiled cloths.

Sleep.—The habits of sleeping or wakefulness will be formed early, and cling closely to the little subject, as it grows older. Without the proper amount of sleep no child can flourish. *The more it sleeps the better for the child.* It should not be disturbed by nurse or mother, and as is customary to put the child to sleep at noon time in very early life, so should it continue till the child can walk about. It should not *be held* while sleeping, but laid upon the bed and warmly covered. The natural condition of the infant, in its early life, *is sleep*, and for *no reason* should it be disturbed.

The child should be allowed the fresh air as much as possible, when the weather permits. Much of the health of the child depends upon the simple rules of hygiene, and to enforce these is the duty of the philosophic physician. It is a blessed gift to be able to *cure* disease, but to *prevent* it, *thrice blessed.*

Diet of the Mother.—You will often be questioned respecting this subject. I am satisfied it is best not to stint the mother too rigidly in this regard. Let her live upon a generous diet, and not avoid articles containing acid. The child soon becomes accustomed to the mother's routine of living, and thrives, whereas, if too much restraint is placed upon her, every little digression from her rule affects the child.

CHAPTER III.

HEAD PRESENTATIONS.

PRESENTATION.—By presentation is meant that part of the fœtus that offers at the superior strait, there may be any number of presentations but for convenience I shall classify them as head, breach and transverse. Head presentations include two varieties, the vertex and face; *breach* presentations offer for considered presentations of the breach, knees and feet, and under the head of transverse, will be considered shoulder, abdominal and dorsal presentations.

The head is distinguishable by its large volume, its roundness and firmness, and by its constituent bones being intersected and separated from each other by open lines and spaces; for it is seldom, when the os uteri is dilated to the size of half-a-crown or a dollar, that we cannot detect some portion of a fontanelle, or one of the sutures. There is little chance of any other presentation being mistaken for the head, except the breach, and perhaps the side. The breech is most likely to be confounded with the cranium, because it possesses a larger circumference than any other part of the child's body, except the head; but it still differs from the head materially in its general size, and more particularly in feeling to the finger softer—not so resistant, but more *cushiony:* it is also more pointed, and possesses no structure resembling a suture or fontanelle. The principal discriminating marks of the presence of the breech, however, are the anus and genitals. The only point of structure in the side that bears the least shadow of resemblance to the head, consists in the interosseous spaces between the ribs, one of which might possibly be mistaken for a cranial suture. As mistakes have been made in this particular, and as it is consequently well worth while drawing distinctive marks between these two parts, I may observe, that at the commencement of

labor under a side presentation, the body of the fœtus seldom descends upon the brim, or into the pelvic cavity, so readily as when the head offers itself; the shoulder and breach being then supported by, and resting upon, the respective ilia. It is, therefore, generally quite out of the reach of the finger, until after the membranes have broken; and this of itself would be a suspicious circumstance. Secondly, the space between the ribs is wider than any suture of the head—unless, indeed, the fœtus be hydrocephalic; and, thirdly, we may usually detect more than one interosseous vacancy. Now, as there are no two sutures in the cranium that run in parallel lines, if we can trace more than one such space by the finger, we can be at no loss to determine that they are both intercostal.

Vertex Presentation.—In by far the greater majority of cases of labor at term, the vertex or crown will be presenting at the superior strait, where it may be found in one of the following four positions:

The *first position* is that in which the long diameter of the head corresponds with the *left oblique diameter* of the pelvis, that is, with the forehead directed towards the right sacro-iliac synchondrosis, the occiput towards the left obturator foramen, the saggital suture corresponding to the left oblique diameter of the pelvis and the right parietal protuberance, the most prominent part of the presentation.

The *second position* is that in which the long diameter of the head corresponds with the *right oblique diameter*, that is, with the forehead directed towards the left sacro-iliac synchondrosis, the occiput towards the right foramen ovale, the saggital suture in the right oblique diameter of the pelvis and the left parietal protuberance the most prominent.

In the *third* and *fourth positions* the same diameters of the head and pelvis correspond, but the os frontis has now changed places with the occiput, and looks towards either the left or the right obturator foramen.

In the former the long diameter of the head corresponds with the left oblique diameter of the pelvis, and constitutes

Explanation of Plate Six.

Fig. 1 shows the first position of vertex presentation.
Fig. 2 shows the second position of vertex presentation.
Fig. 3 shows the third position of vertex presentation.
Fig. 4 shows the fourth position of vertex presentation.

PLATE VI

Fig. 1

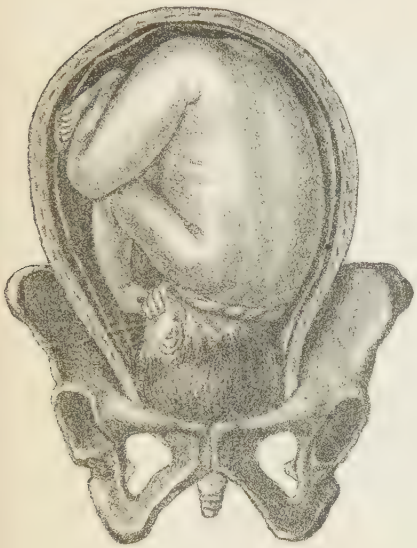


Fig. 2

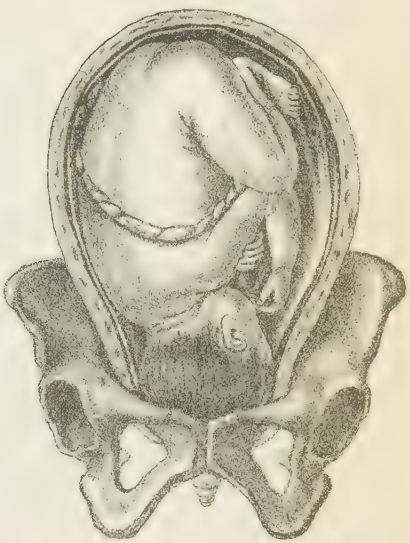


Fig. 4

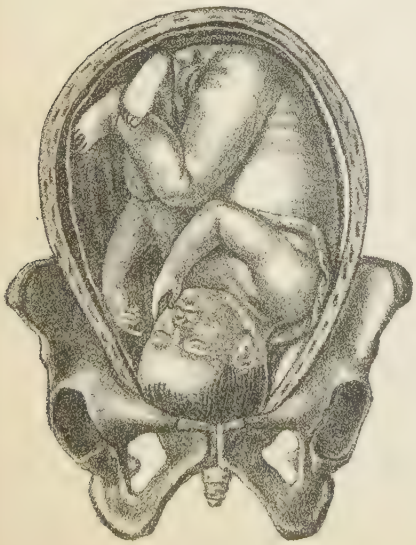
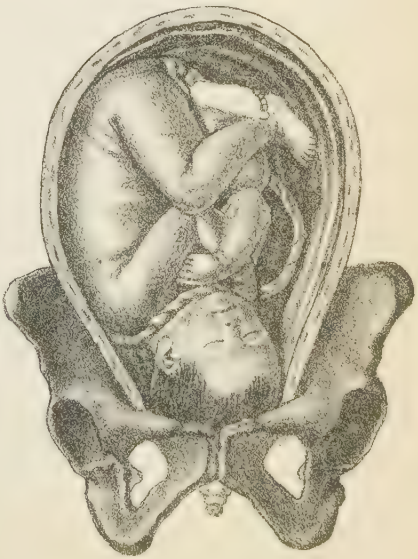


Fig. 3



what is called the *third cranial position;* the left parietal protuberance presenting.

In the latter, on the contrary, the long diameter of the head corresponds with the right oblique diameter of the pelvis, and thus forms the *fourth cranial position;* the right parietal protuberance being the prominent feature of the presentation.

The two first are usually designated as occipito anterior and the last as occipito posterior positions, several other positions have been described by obstetrical authors and it is possible that we may have an occipito pubic, occipito sacral and occipito iliac position, but usually they rotate into one of the four oblique positions so that it is unnecessary to describe their mechanism.

MECHANISM.—*Flexion.*—After the rupture of the membranes, the trunk of the fœtus, pressed on all sides, transmits through the spinal column to the head the force of the uterine contractions. The fœtal head being thus violently thrust downwards, endeavors to pierce the os uteri and engage in the pelvis. It is resisted, however, partly by the rim of the os uteri, not as yet sufficiently dilated, and partly by the parietes of the pelvic canal or superior strait. The head thus placed between an expelling force and a resisting medium, must necessarily approach more and more to the thorax; for the expulsive force which is transmitted by the spine, falling upon the occipital foramen, or on a point much nearer to the occiput than to the chin, the resistance to the poles of the occipito-mental diameter being equal, the result must necessarily be that the expulsive efforts will act more powerfully upon the occiput than the chin; the occiput, therefore, descends, the descent of this part causing the chin to approach the thorax, and hence increased flexion occurs, having for its result the bringing of the vertex to the centre of the superior strait. Consequent upon this act of mechanism, the relations between the fœtal head and the pelvis are changed. The occipito-bregmatic diameter now corresponds with one oblique diameter of the pelvis, the bi-parietal with the other, and the occipito-mental is in coincidence with the axis of the super-

ior strait; the smallest diameters of the fœtal head are therefore in relation with the largest of the pelvis.

Engagement.—The head engages in complete flexion in the superior strait, and has a lateral inflexion, causing the parietal bone which looks to the symphysis pubis to dip below the posterior parietal bone. It is thus that the head accommodates itself to the inclination of the superior strait, which looks from behind forwards; hence it results that one of the parietal protuberances descends into the pelvic cavity before the other. This is often a cause of difficulty to an inexperienced medical attendant, his finger in a per-vaginam examination striking against the parietal protuberance, which is near the symphysis pubis, and rotation having partially taken place, the parietal protuberance projecting at the symphysis pubis, and causing some distention of the perineum, he flatters himself that the delivery is at hand, whereas it may be far off, and much time may yet be consumed before full rotation takes place.

Rotation.—While the head is descending through the cavity of the pelvis, it is evident that it falls upon those inclined planes of which we took occasion to speak when on the subject of the pelvis; the occiput rests upon one of the anterior inclined planes, and the forehead upon the plane formed by the sacro sciatic ligaments and perineum, which are diagonally opposite. The result of the combined action of these planes and the expelling force of the uterus and abdominal muscles is, that the occiput rotates under the pubic arch, and the forehead into the hollow of the sacrum. The relative position of the fœtus to the pelvis is now entirely changed, and we have the occipito-bregmatic diameter corresponding with the antero-posterior diameter of the inferior strait and the bi-parietal with the transverse—the occipito-mental diameter corresponding with the axis of the inferior strait. By this beautiful adaptation on the part of nature of means to ends, we have the smallest diameters of the fœtal head kept in coincidence with the largest of the pelvis.

Extention.—Rotation of the head being now accomplished by the presentation of the vertex at the symphysis pubis, and the face being in the hollow of the sacrum, the head still in

flexion, the extension or departure of the chin from the breast takes place. To appreciate this act of mechanism, we must recollect that the contractions of the uterus, always transmitted through the spine, have been acting upon one of the poles of the occipito-mental diameters; and on account of the peculiarity of the spino-cranial articulation, their influence has hitherto been chiefly exerted upon the occipital extremity; but when the occiput is firmly engaged in the arch of the pubis, the nape of the neck is pressed closely against the symphysis pubis, and the resistance consequent upon this condition prevents any further action of the uterine pains upon the occiput; these therefore now act upon the other extremity of the lever, viz: the chin, which descends; the descent of the chin being attended with the ascent of the occiput; or, in other words, the head rolls out

Fig. 26.

Fig. 26 shows the various changes undergone by the fœtal head in mechanism of labor, *i. e.*, flexion, engagement, rotation, extension, restitution.

under the edge of the triangular ligament and rises in front of the outer surface of the symphisis pubis, over the mons veneris.

By this means the vertex is the first portion of the head delivered, and the chin the last.

Restitution.—The head, once born, immediately rotates to the same direction which it had in engaging in the pelvis. It assumes its originally oblique position. Mr. Gerdy gives the following explanation of this external rotation. According to him, the trunk participates in the first or internal rotation of the head, so that the shoulders take a transverse position in the pelvis, instead of their oblique one, as at the commencement of labor. They arrive thus on the inclined planes, where, owing to their elevation, another rotation takes place from right to left, and the head being free, follows the movement of the shoulders. According to this observer, the head first causes the shoulders to rotate, and is in turn rotated by them.

The shoulders, having rotated coincidently with restitution of the head, are next expelled. The pubic shoulder having the shortest distance to travel, appears first at the vulva, and being pressed against the symphysis pubis, remains stationary until the sacral shoulder glides over the sacro-coccygeal perineal curve, and is generally born before the pubic.

The hips then follow, executing, if their size require it, the same movements as the shoulders.

The foregoing description applies to the mechanism of labor in occipito-anterior positions.

Mechanism of Third and Fourth Positions.—As some slight difference occurs in the delivery of the occipito-posterior positions, we shall illustrate their mechanism. There are also several stages for these. In the first stage, after the rupture of the membranes, we have the same diameters of the fœtal head in relation with those of the pelvis, as in the occipito-anterior positions, the sole difference consisting in the occiput presenting to one of the sacro-iliac synchondroses.

1. *Flexion.*—This act is not as perfect in these positions as in the previous ones. The uterus acts with mechanical disadvantage. The normal inclination of the os uteri causes a natural tendency to a slight deflection of the chin from the thorax; during the further descent of the head through the pelvis, this

deflection may be remedied; but if, on the other hand, there is a slight obliquity of the uterus, and any obstacle presents itself to the descent of the occiput, the deflection will be increased, and even to such a degree as to cause a face presentation at the inferior strait.

2. *Engagement.*—The head in entering the pelvis is not in as perfect flexion as in the occipito-anterior positions.

3. *Rotation.*—The head engaging on the inclined planes, in most cases, by a wonderful adaptation on the part of the pelvis to the wants of the economy in labor, the vertex is rotated from

Fig. 27.

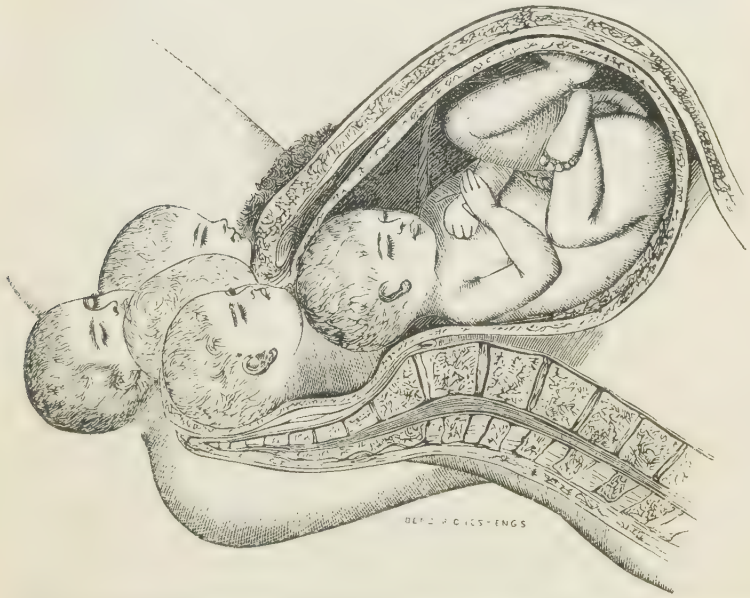


Fig. 27 shows the mechanism of delivery in occipito posterior positions, when anterior rotation of the occiput does not take place, *i. e.*, flexion engagement, increased flexion, extension, restitution.

the sacro-iliac junction to the acetabulum, and thence to the pubic arch. In some rare cases, however, this *favorable rotation* does not take place; the occiput then falls into the hollow of the sacrum, and the forehead under the arch of the pubis. As the greater breadth of the forehead does not allow it to correspond with the arch of the pubis, as in the case of the nape of

the neck, and as the occipito-frontal diameter is too large to allow it to pass, increased flexion of the head must result as the latter passes through the inferior strait, and great compression of it and of the chest ensue. The occiput, impelled by the uterine contractions, is travelling over the curve of the sacrum and perineum, to reach the vulva. The forehead rises up and is concealed behind the symphisis pubis. No sooner has the vertex passed over the fourchette, than the distended perineum, slipping over the inclined plane formed by the nape of the neck, recoils upon itself, and thus facilitates the delivery of the anterior portions of the head, and extension takes place by the occiput rolling backwards.

Vertex presentations are undoubtedly the most favorable; but the various positions of a vertex presentation are not all equally favorable. The occipito-anterior are much more so than the occipito-posterior. In reference to the latter, we have seen that delivery can take place by means of two distinct kinds of mechanism. When the favorable rotation takes place to which we have already alluded, it is evident that the increased uterine contractions required to make such extensive rotation must cause much more suffering; but it is in those where the original position is maintained that the greater disadvantage results.

Face Presentations.—Face presentations differ but little from natural labors, and are neither so formidable nor dangerous as the older writers supposed, and may, with few exceptions, be treated as natural labors. Cases, however, have occurred, where, from failure of maternal powers, version has been called for; or the forceps may in some instances be needed to complete delivery.

There are four positions to be described in face presentations, as follows:

First Position.—The chin points to the right sacro-iliac synchondrosis, the forehead to the left foramen ovale, the long diameter of the face lies in the left oblique diameter of the pelvis. This corresponds to the first position of the vertex, and, as in that, the back of the child lies to the left side of the mother.

Second Position.—The chin points to the left sacro-iliac synchondrosis, the forehead to the right foramen ovale, and the long diameter of the face lies in the right oblique diameter of the pelvis. This is the conversion of the second vertex position.

Third Position.—The forehead points to the right sacro-iliac synchondrosis, the chin to the left foramen ovale, and the long diameter of the face lies in the left oblique diameter of the pelvis. This is the conversion of the third vertex position.

Fourth Position.—The forehead points to the left sacro-iliac synchondrosis, the chin to the right foramen ovale, and the long diameter of the face lies in the right oblique diameter of the pelvis. This is the conversion of the fourth vertex position.

Sometimes there is a fifth position, by the forehead sinking down more rapidly than the chin; by some called *presentation of the brow or forehead.* The same sometimes characterizes one cheek.

If labor be the moderately quick and effective, face cases generally do well, and the child is not endangered; but long pressure may induce effusion on the brain. When born, the face appears swollen and distorted. To define these cases from breech, bear in mind the eyes, nose, and mouth, and their relative positions; and be careful, in examination, not to injure them.

The mechanism of delivery is practically the same as in vertex presentations.

1. The first step is the extension of the head, which is effected by the uterine contractions as soon as the membranes are ruptured. By this the occiput is still more completely pressed back on the nape of the neck, and the fronto-mental, rather than the mento-bregmatic, diameter is placed in relation to the pelvic brim. This corresponds to the stage of flexion in vertex presentation.

The chin and front parts of the face descend below the forehead, from precisely the same reason as the occiput descends in vertex presentations. On account of the extended position of the head, the presenting face is divided into portions of unequal length in relation to the vertebral column, through which the force is applied, the longer lever arm being towards the

forehead. The resistance is, therefore, greatest towards the forehead, which remains behind, while the chin descends.

2. *Descent.*—As the pains continue, the head (the chin being still in advance) is propelled through the pelvis. It is generally said that the face cannot descend, like the occiput down to the floor of the pelvis, its descent being limited to the length of the neck. There is here, however, an obvious misapprehension. The neck from the chin to the sternum, when the head is forcibly extended, measures from three and a half to four inches, a length that is more than sufficient to admit of the face descending to the lower pelvic strait. As a matter of fact, the chin is frequently observed in mento-posterior positions to descend so far that it is apparently endeavoring to pass the perineum before rotation occurs. At the brim the two sides of the face are on a level, but, as labor advances, the right cheek descends somewhat, the caput succedaneum forms on the malar bone, and, if a secondary caput succedaneum form, on the cheek.

Fig. 28.

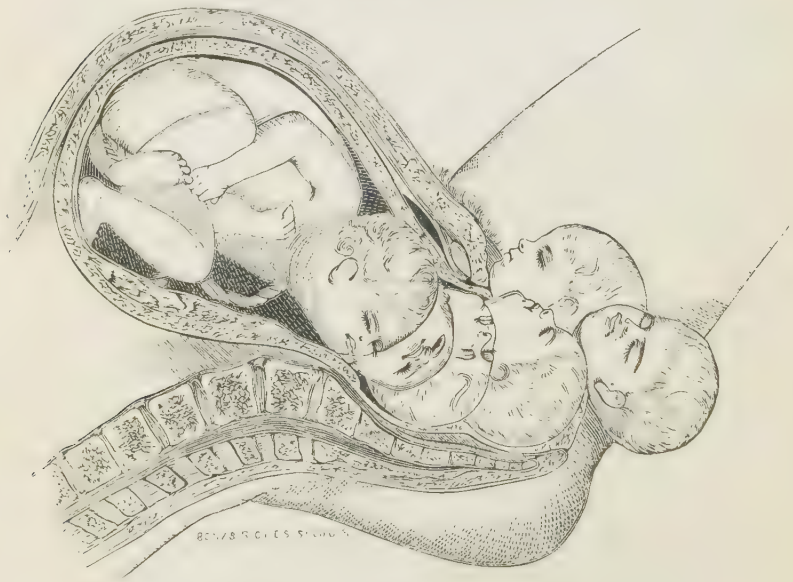


Fig. 28 shows the mechanism of Face Presentation, Extention, Descent and Rotation combined, Rotation, Flexion and Restitution.

3. *Rotation* is by far the most important point of the mechanism of face presentations; for, unless it occur, delivery, with a full-sized head and an average pelvis, is practically impossible. There are, no doubt, exceptions to this rule, which must be separately considered; but it is certain that the absence of rotation is always a grave and formidable complication of face presentation. Fortunately, it is only very rarely that it is not affected. The mechanical causes are precisely those which produce rotation of the occiput forwards in vertex presentations. As it is accomplished, the chin passes under the arch of the pubes, and the occiput rotates into the hollow of the sacrum; and then commences—

4. *Flexion*, a movement which corresponds to extention in vertex cases. The chin passes as far under the pubes as the arch will allow, and there becomes fixed. The uterine force is now expended on the occiput, which rotates, as it were, on its transverse axis, the under surface of the chin resting on the pubes as a fixed point. This movement goes on until, at last, the face and occiput sweep over the distended perineum.

5. *Restitution* is precisely similar to that which takes place in head presentations, and, like it, depends on the movements imparted to the shoulders.

Treatment.—These cases, if not interfered with, mostly terminate well; they require time and patience, seldom more is necessary; but in some the forceps, and even perforator, have been called for, in consequence of exhaustion. Face presentations are accidental, and may be classed as preternatural; but as the uterus can expel the child with little additional difficulty from the usual vertex presentation, they can scarcely be regarded but as little differing from natural cases. The causes of face presentations appear to be deviations in the axis of the womb.

Explanation of Plate Seven.

Section of a frozen body at the termination of the first stage of labor (after Braune.) The bag of membranes is still unbroken, the cervix is fully dilated, and the head (in the second position) is in the pelvic cavity

1—Pancreas.
2—Stomach.
3—Internal Os Uteri.
4—Bladder.
5—External Os Uteri.
6—Urethra.
7—Cœliac Artery.
8—Superior Mesenteric Artery.
9—Vena Portæ.
10—Left Renal Vein.
11—Descending Aorta.
12—Duodenum.
13—Placenta.
14—Left Iliac Vein.
15—Internal Os Uteri.
16 Rectum.
17—External Os Uteri.
18—Rectum.
19—Liquor Amnii.

PLATE VII.

CHAPTER IV.

BREECH PRESENTATION.

Under the head of *pelvic* presentations it is customary to include all cases in which any part of the lower extremities of the child presents. By some these are farther subdivided into *breech*, *footling*, and *knee* presentations; but, although it is of consequence to be able to recognize the feet and the knee when they present, so far as the mechanism and management of delivery are concerned, the cases are identical, and, therefore, may be most conveniently considered together.

Diagnosis of the Breech.—Often, on first examining, even when the membranes are ruptured, the presentation is too high up to be made out accurately. All that we can be certain of is, that it is not the head; and the case must be carefully watched, and examinations frequently repeated, until the precise nature of the presentation can be established. If the breech present, the finger first impinges on a round, soft prominence, on depressing which a bony protuberance, the trochanter major, can be felt. On passing the finger upwards it reaches a groove, beyond which a similar fleshy mass, the other buttock, can be felt. In this groove various characteristic points; diagnostic of the presentation, can be made out. Towards one end we can feel the movable tip of the coccyx, and above it the hard sacrum, with rough projecting prominences. These points, if accurately made out, are quite characteristic, and resemble nothing in any other presentation. In front there is the anus, in which it is sometimes, but by no means always, possible to insert the tip of the finger. If this can be done it is easy to distinguish it from the mouth, with which it might be confounded, by observing that the hard alveolar ridges are not contained within it. Still more in front we may find the genital organs, the scrotum in male children being often much swollen if the labor has been

protracted. Thus it is often possible to recognize the sex of the child before birth.

Differential Diagnosis.—The breech might be mistaken for the face, especially if the latter be much swollen; but this mistake can readily be avoided by feeling the spinous processes of the sacrum.

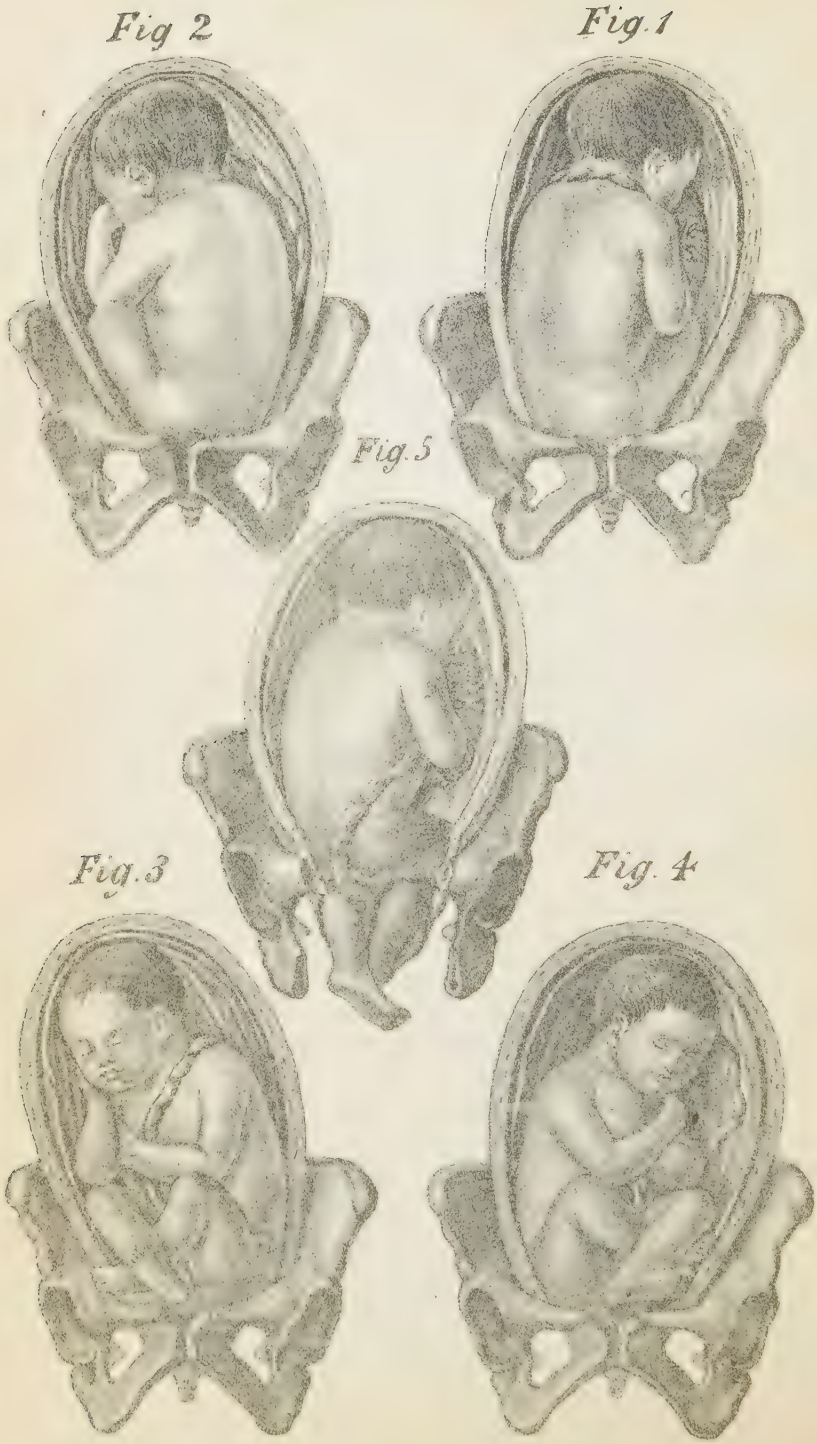
The Knee.—The knee is recognized by its having two tuberosities with a depression between them. It might be confounded with the heel, the elbow, or the shoulder. From the heel, it is distinguished by having two tuberosities instead of one; from the elbow, by the latter having one sharp tuberosity, with a depression on each side, instead of a central depression and two lateral prominences; and from the shoulder, by the latter being more rounded, having only one prominence, running from which the acromion and the clavicle can be traced.

The Foot.—The foot may be mistaken for the hand. This error will be avoided by remembering that all the toes are in the same line, and that the great toe cannot be brought into opposition with the others, as the thumb can with the fingers. The internal border of the foot is much thicker than the external, whereas the two borders of the hand are of the same thickness. Moreover, the foot is articulated at right angles to the leg, and cannot be brought into a line with it, as the hand can with the arm. Finally, the projection of the calcaneum is characteristic, and resembles nothing in the hand.

Mechanism.—As is the case in other presentation, obstetricians have very variously subdivided breech presentations, with the effect of needlessly complicating the subject. The simplest division, and that which will most readily impress itself on the memory of the student, is to describe the breech as presenting in four positions, analogous to those of the vertex, the sacrum being taken as representing the occiput, and the positions being numbered according to the part of the pelvis to which it points. Thus we have—

First, or left sacro-anterior (corresponding to the first position of the vertex.) The sacrum of the child points to the left foramen ovale of the mother.

PLATE VIII



Explanation of Plate Eight.

Fig. 1 shows the second position of the breach.
Fig. 2 shows the first position of the breach.
Fig. 3 shows the fourth position of the breach.
Fig. 4 shows the third position of the breach.
Fig. 5 shows a footing presentation.

Second, or right sacro-anterior (corresponding to the second vertex position.) The sacrum of the child points to the right foramen ovale of the mother.

Third, or right sacro-posterior (corresponding to the third vertex position.) The sacrum of the child points to the right sacro-iliac synchondrosis of the mother.

Fourth, or left sacro-posterior (corresponding to the fourth vertex position.) The sacrum of the child points to the left sacro-iliac synchondrosis of the mother.

Of these, as with the corresponding vertex positions, the first and third are the most common. The mechanical conditions to which the presenting part is subjected are also identical, but the alterations of positions of the breech in its progress are by no means so uniform as those of the head, on account of its less perfect adaptation to the pelvic cavity. The mechanism of the delivery of the shoulders and head in breech presentations, moreover, is of much greater practical importance than that of the body in vertex presentations, inasmuch as the safety of the child depends on its speedy and satisfactory accomplishment. Bearing these facts in mind, it will suffice to describe briefly the phenomena of delivery in the first and third breech positions.

Position of the Child at Brim.—In the first position the sacrum of the child points to the left foramen ovale, and its back is consequently placed to the right side of the uterus and anteriorly, while its abdomen looks to the left side of the uterus and posteriorly. The sulcus between the buttocks lies in the right oblique diameter of the pelvis, while the transverse diameter of the buttocks lies in the left oblique diameter, the left buttock being most easily within reach. As in vertex presentations, the hips of the child lie on the same level at the pelvic brim.

Descent.—As the pains act on the body of the child, the breech is gradually forced through the pelvic cavity, retaining the same relations as at the brim, its progress being generally more slow than that of the head, until it reaches the lower pelvic

strait, when the same mechanism which produces rotation of the occiput comes to operate upon it. The result is a rotation of the child's pelvis, so that its transverse diameter comes to lie approximately in the antero-posterior diameter of the outlet, its antero-posterior diameter corresponds to the transverse diameter of the mother's pelvis, the left hip lies behind the pubes, and the right towards the sacrum.

Expulsion of the Hips and Body.—The left hip now becomes firmly fixed behind the pubes, and a movement of extension analogous to that of the head in vertex presentations, takes place. The right, or posterior, hip revolves round the fixed

Fig. 29.

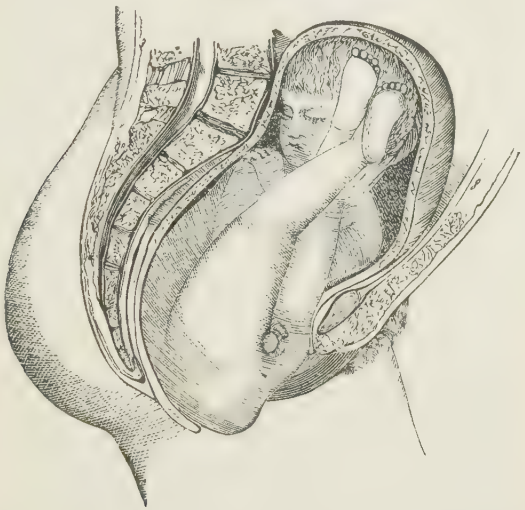


Fig. 29 illustrates the mechanism of Breech Presentation, Engagement and Rotation.

one, gradually distends the perineum, and is expelled first, the left hip rapidly following. As soon as both hips are born, the feet slip out, unless they happen to be completely extended upon the child's abdomen. The shoulders soon follow, lying in the left oblique diameter of the pelvis. The left shoulder rotates forwards behind the pubes, where it becomes fixed, the right shoulder sweeping over the perineum, and being born first. The arms of the child are generally found placed upon its thorax, and are born before the shoulders. Sometimes they

are extended over the child's head, thus causing considerable delay, and greatly increasing the risk to the child. It is now generally admitted that such extension is most apt to occur when traction has been made on the child's body with the view of hastening delivery, and that it is rarely met with when the expulsion of the body is left entirely to the natural powers.

Delivery of the Head.—When the shoulders are expelled, the head enters the pelvis in the opposite, or right oblique, diameter, the face looking to the right sacro-iliac synchondrosis. As the greater part of the child is now expelled, and as the head has entered the vagina, the uterus, having a comparatively small mass to contract upon, must obviously act at a great mechanical disadvantage. Still, the pressure of the head on the vagina is a powerful inciter, the accessory muscles of parturition are brought into strong action, and there is usually quite sufficient force to ensure expulsion of the head without artificial aid. On account of the greater resistance to the descent of the occipital end of the head, due to the upward pressure of the spinal column, the pains have the effect of forcing down the anterior portion of the head, and thus ensure the complete flexion of the chin upon the sternum. This is a great advantage from a mechanical point of view, as it causes the short occipito-mental diameter of the head to enter the pelvis in the axis of the uterus and brim. If the head should happen to be in a state of partial extension, as sometimes when the pelvis is unusually roomy, the occipito-frontal diameter is placed in a similar relation to the brim, a position certainly less favorable to the easy birth of the head. As the head descends, it experiences a movement of rotation, the occiput passing forwards and to the right, behind the arch of the pubes, the face turning backwards into the hollow of the sacrum. The body of the child will be observed to follow this movement, so that its back is turned towards the mother's abdomen, its anterior surface to the perineum. The nape of the neck now becomes firmly fixed under the arch of the pubes, the pains act chiefly on the anterior portion of the head, and cause it to sweep over the perine-

um, the chin being first born, then the mouth and forehead, and lastly the occiput.

Sacro-posterior Positions.—It is needless to describe the differences between the mechanism of the second and first positions, which the student who has mastered the subject of vertex presentations will readily understand. It is necessary, however, to say a few words as to sacro-posterior positions, choosing for that purpose the third, which is the more common of the two. This is exactly the opposite of the first position. The sacrum of the child points to the right sacro-iliac synchondrosis; its abdomen looks forward and to the left side of the mother. The transverse diameter of the child's hip lies in the left oblique diameter, the right hip being anterior. The birth of the body generally takes place exactly in the way that has been already described, the right hip being towards the pubes.

As the head descends into the pelvis, the occiput most usually rotates along its right side—the rotation having been often already partially effected when that of the hips had been made—until it comes to rest behind the pubes, the face passing backwards along the left side of the pelvis into the hollow of the sacrum. This change corresponds exactly to the anterior rotation of the occiput in occipito-posterior positions, and is the natural and favorable termination.

Sometimes, however, the rotation does not take place, and the occiput then turns backwards into the hollow of the sacrum. What then generally occurs is that the pains continue, for the reason already mentioned, to depress the chin and produce strong flexion of the face on the sternum, the occiput becoming fixed on the anterior border of the perineum. The pains continuing to act chiefly on the anterior part of the head, the face is born first behind the pubes, the occiput only slipping over the perineum after the forehead has been expelled.

The mechanism of the delivery of the body and head in cases in which the knees or feet originally present, does not differ in any important respect from that which has been already described, and requires no separate notice.

Treatment.—From what has been said of natural mechanism of delivery in pelvic presentations, it is evident that one of the most fruitful causes of difficulty and complication is undue interference on the part of the practitioner. It is no doubt tempting to use traction on the partially born trunk in the hope of expediting delivery; but when it is remembered that this is almost certain to produce extension of the arms above the head, and subsequently extention of the occiput on the spine, both of which seriously increase the difficulty of delivery, the necessity of leaving the case as much as possible to nature will be apparent.

Having once, therefore, determined the existence of a pelvic presentation, nothing more should be done until the birth of the breech has been affected. The membranes should be even more carefully prevented from prematurely rupturing than in vertex presentations, since they serve to dilate the genital passages better than the presenting part. Hence they should be preserved intact, if possible, until they reach the floor of the pelvis, instead of being punctured as soon as the os if fully dilated. The breech when born should be received and supported in the palm of the hand.

When the body is expelled as far as the umbilicus, the dangers to the child commence; for now is the time that the cord is apt to be pressed between the body of the child and the pelvic walls. To obviate this risk as much as possible, a loop of the cord should be pulled down, and carried to that part of the pelvis where there is most room, which will generally be opposite one or other sacro-iliac synchondrosis. As long as the cord is freely pulsating, we may be satisfied that the life of the child is not gravely imperilled; although delay is fraught with danger, from other sources which have been already indicated. In most cases the arms now slip out; but it may happen even without any fault on the part of the accoucheur, that they are extended above the head, and it is of great importance that we should be thoroughly acquainted with the best means of liberating them from their abnormal position.

They must, of course, never be drawn directly downwards, or the almost certain result would be fracture of the fragile bones. We should endeavor to make the arms sweep over the face and chest of the child, so that the natural movements of its joints should not be opposed. If the shoulders be within easy reach, the finger of the accoucheur should be slipped over that which is posterior—because there is likely to be more space for this manœuvre toward the sacrum—and gently carried downwards toward the elbow, which is drawn over the face, and then onwards, so as to liberate the forearm. The same manœuvre should then be applied to the opposite arm. It may be that the shoulders are not easily reached, and then they may be depressed by altering the position of the child's body. If this be carried well up to the mother's abdomen, the posterior shoulder will be brought lower down; and by reversing this procedure and carrying the body back over the perineum, the anterior shoulder may be similarly depressed. It is only very exceptionally, however, that these expedients are required.

Birth of the Head.—The arms being extracted, some degree of artificial assistance is, at this time, almost always required. If there be much delay, the child will almost always perish. Attempts have been made, in cases in which delivery of the head could not be rapidly effected, to establish pulmonary respiration by passing one or two fingers into the vagina, so as to press it back and admit the access of air to the child's mouth, or by passing the catheter or tube into the mouth. Neither of these expedients, however, is reliable, and we should rather seek to aid nature in completing the birth of the head as rapidly as possible. The first thing to do, supposing the face to have rotated into the cavity of the sacrum, is to carry the body of the child well up towards the pubes and abdomen of the mother without applying any traction, for fear of interfering with the all-important flexion of the chin on the sternum. If now the patient bear down strongly, the natural powers may be sufficient to complete delivery. If there be any delay, traction must be resorted to, and we must endeavor to apply it in such a way as to ensure flexion. For this purpose, while the body of the

child is grasped by the left hand, and drawn upwards toward the mother's abdomen, the index and middle fingers of the right hand are placed on the back of the child's neck, so that their tips press on either side of the base of the occiput, and push the head into a state of flexion. Pass the index and middle fingers of the left hand at the same time over the child's face, so as to depress the superior maxilla. Flexion of the chin

Fig. 30.

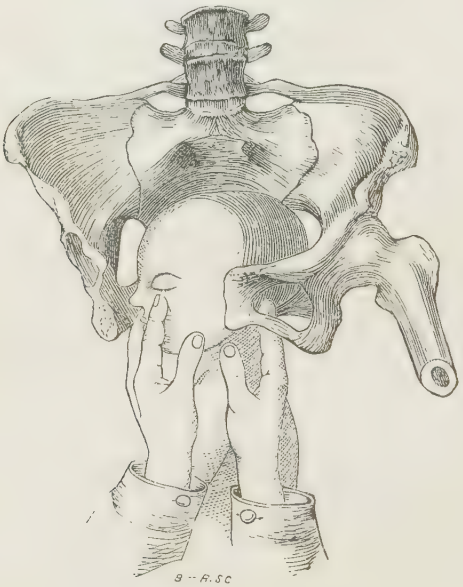


Fig. 30 shows the manner of delivering the head by assisting flexion in Breech Cases.

may also be very effectually assisted by downward pressure on the forehead through the rectum. One or two fingers of the left hand can readily be inserted into the bowel, and the expulsion of the head is thus materially facilitated.

Pressure through the Abdomen.—By far the most powerful aid, however, in hastening delivery of the head, should delay occur, is pressure from above. This has been, strangely enough, almost altogether omitted by writers on the subject. It has been strongly recommended by Professor Penrose; and

there can be no question of its utility. Indeed, as the uterus contracts tightly round the head, uterine expression can be applied almost directly to the head itself, and without any fear of deranging its proper relation to the maternal passages. It is very seldom indeed that a judicious combination of traction on the part of the accoucheur, with firm pressure through the abdomen, applied by an assistant, will fail in effecting delivery of the head before the delay has had time to prove injurious to the child.

Application of the Forceps.—Playfair says: "Many accoucheurs—among others Busch, Meigs, and Rigby—advocate the application of the forceps when there is delay in the birth of the after-coming head. If the delay be due to want of expulsive force in a pelvis of normal size, manual extraction, in the manner just described, will be found to be sufficient in almost every case, and preferable, as being more rapid, easier of execution, and safer to the child. The forceps may be quite properly tried, if other means have failed; especially if there be some disproportion between the size of the head and the pelvis."

Difficulties in delivery may also occur in sacro-posterior positions. Up to the time of the birth of the head the labor usually progresses as readily as in sacro-anterior positions. If the forward rotation of the hips do not take place, much subsequent difficulty may be prevented by gently favoring it by traction applied to the breech during the pains, the finger being passed for this purpose into the fold of the groin.

It is after the birth of the shoulders that the absence of rotation is most likely to prove troublesome. It has been recommended by some that the body should be grasped, in the interval between the pains, and twisted round so as to bring the occiput forward. It is by no means certain, however, that the head would follow the movement imparted to the body, and there must be a serious danger of giving a fatal twist to the neck by such a manœuvre. The better plan is to attempt to direct the face backwards, towards the cavity of the sacrum, by pressing on the anterior temple during the continuance of a pain.

In this way the proper rotation will generally be effected without much difficulty, and the case will terminate in the usual way.

If rotation of the occiput forwards do not occur, it is necessary for the practitioner to bear in mind the natural mechanism of delivery under such circumstances. In the majority of cases the proper plan is to favor flexion of the chin by upward pressure on the occiput, and to exert traction directly backwards, remembering that the nape of the neck should be fixed against the anterior margin of the perineum. If this be not remembered, and traction be made in the axis of the pelvic outlet, the delivery of the head might be seriously impeded. In the rare cases in which the head becomes extended, and the chin protrudes over the upper margin of the pubes, traction directly forwards and upwards may be required to deliver the head; but before resorting to it care should be taken to ascertain that backward extension of the head has really taken place.

Impacted Breech Presentation.—It remains for us to consider the measures which may be adopted in those very troublesome cases in which the breech refuses to descend, and becomes impacted in the pelvic cavity, either from uterine inertia, or from disproportion between the breech and the pelvis. Here, fortunately, notwithstanding the peculiar shape of the presenting part, the application of the forceps is the best way to effect delivery.

Two other measures have been employed: 1st, bringing down one or both feet, so as to break up the presenting part and convert it into a footling case; 2nd, traction on the breech, either by the fingers, a blunt hook, or fillet passed over the groin.

Barnes insists on the superiority of the former plan, and there can be no question that, if a foot can be got down, the accoucheur has a complete control over the progress of the labor, which he can gain in no other way. If the breech be arrested at or near the brim, there will generally be no great difficulty in effecting the desired object. It will be necessary to give chloroform to the extent of complete anæsthesia, and to pass the hand over the child's abdomen in the same manner and with the same precautions as in performing podalic version,

until a foot is reached, which is seized and pulled down. If the feet be placed in the usual way close to the buttocks, no great difficulty is likely to be experienced. If, however, the legs be extended on the abdomen, it will be necessary to introduce the hand and arm very deeply, even up to the fundus of the uterus, a procedure which is always difficult, and which may be very hazardous. Nor do I think that the attempt to bring down the feet can be safe when the breech is low down and fixed in the pelvic cavity. A certain amount of repression of the breech is certainly possible, but it is evident that this cannot be safely attempted when the breech is at all low down.

Traction on the Groin.—Of all contrivances for this purpose none is better than the hand of the accoucheur. The index finger can generally be slipped over the groin without difficulty, and traction can be applied during the pains. Failing this, or when it proves insufficient, an attempt should be made to pass a fillet over the groins. A soft silk handkerchief, or a skein of worsted, answers best, but it is by no means easy to apply. The simplest plan, and one which is far better than the expensive instruments contrived for the purpose, is to take a stout piece of copper wire and bend it double into the form of a hook. The extremity of this can generally be guided over the hips, and through its looped end the fillet is passed. The wire is now withdrawn, and carries the fillet over the groins. The use of a soft fillet is in every way preferable to the blunt hook which is contained in most obstetric bags. A hard instrument of this kind is quite as difficult to apply, and any strong traction employed by it is almost certain to seriously injure the delicate fœtal structures over which it is placed. Auxiliary, the employment of uterine expression, should not be forgotten, since it may give material aid when the difficulty is only due to uterine inertia.

Embryotomy.—Failing in all endeavors to deliver by these expedients, there is no resource left but to break up the presenting part by scissors, or by craniotomy instruments; but, fortunately, so extreme a measure is but rarely necessary.

PART IV.

DYSTOCIA.

CHAPTER I.

FUNCTIONAL DYSTOCIA.

By Edwin M. Hale, M. D.

By Functional Dystocia is meant those forms of preternatural and painful labors which are due to abnormal conditions of the generative organs, *not* structural in character.

Functional Dystocia may be divided into two groups, that may interfere with the regular processes of nature.

1. Those rendered difficult, impossible or dangerous by a *deficient* or *excessive* action of the expulsive forces.

2. Those rendered difficult, impossible or dangerous by obstacles (*non*-structural) to the expulsion of the fœtus.

To these may be added another group, which will include those *accidents* which may occur *during* labor, and endanger the life or health of the mother.

The *treatment* of Functional Dystocia may be divided into —(1) Preventive, which includes those hygienic measures and medicinal agents which may be advised previous to the time of labor; and—(2) *Actual*, or those medicinal agents and auxilliary measures to be adopted during the progress of the labor.

Preventive Treatment.—The adoption of a prophylactic treatment for painful or difficult labor has not attracted that attention from physicians that the subject demands.

It is a singular and suggestive fact that nearly all barbarous and semi-civilized tribes or nations do adopt some treatment, to which pregnant women are subjected, that is supposed to have a modifying influence on their confinements.

This treatment, in some cases, consists merely of certain baths and ablutions; in others, of semi-religious or superstitious rites, such as ablutions and alterations in diet; while in some tribes, like the North American Indians, the treatment consists almost wholly in the drinking for several weeks or days previous to labor, of the infusions or decoctions of indigenous plants.

Some physicians affect to sneer at any medicinal measures used to ward off possible abnormal conditions which may render labor painful and difficult. But if these same physicians could *know* that any patron would, after a few weeks or days, be attacked by a scarlet fever or rheumatism, would they not prescribe some hygienic or medicinal measures to mitigate the severity of such attacks?

Now, although labor is a natural function, and the resources of the organism are usually sufficient for its accomplishment, yet there are a number of circumstances which may interfere with the work of nature, and render the process painful, difficult and dangerous.

If, then, the physician can devise any means by which these obstacles to a normal labor can be prevented or modified, it is his duty to adopt such means for the relief of those who are placed under his care.

I do not believe that it is necessary, or normal, that *all* labors shall be painful.

The process of parturition is purely a physiological one—as much so as the process of urination and defecation. The latter especially is closely allied to parturition in its mechanism.

I do not believe the one should be more painful than the other.

Notwithstanding it has been asserted by travelers and residents among aboriginal tribes, that the women of such tribes *do* suffer from the "pangs of child-birth," I do not believe that their so-called sufferings compare in nature and intensity with those of women in a state of civilization.

The fact is, that there are very few tribes on the globe which can be said to be now living in a *natural* state. The slightest contact with civilization modifies their habits and customs, and every slight modification tends to modify their physiological functions.

I have received positive and trustworthy information from those who have spent many years among our native tribes, that they know of hundreds of instances where the process of childbirth was not attended by other than *painless* expulsive efforts. And more: Nearly every physician of large obstetric practice has attended cases in which the woman was confined in so short a time, and with so little suffering, that the labor could be termed *painless*.

In my own practice I have known many instances where *pain*, as properly understood, was not present. The labor was attended by bearing-down, expulsive efforts, and some vascular and mental excitement—nothing more. Therefore *normal* labor may be termed a *painless function*.

So long as the human race can never return to a state of existence, such as we picture in the ideal, so long, will a large proportion of women be subject to dystocia.

What are the elements to be taken into account in the *preventive* treatment of functional dystocia?

If possible, we should first ascertain if any *structural* obstacle exists. If we find none, we should then inquire into the history of the patient.

If a *primipara*, we should get her menstrual history, as this may be some guide as to the probable nature of the labor.

"Some writers," says Cazeaux, "have attempted to establish a relation between the phenomena that precede or accompany the menstrual discharge in the now gravid state, and the activity or slowness of the contractions of the womb, during the labor; for they say, should the periodical flow be difficult, laborious and painful, and the patient be tormented every month with violent colicy pains, either before or during her terms, the irritability of the uterus, and the energy of the contractions will almost invariably be excessive in the hour of childbirth; but,

on the contrary, there is reason to anticipate the occurrence of slow and feeble pains when the woman is advised of the return of her menses only by the appearance of blood, and when they pass off, without suffering."

There is much truth in this theory, for it has been observed that those women who were the subjects of violent dysmenorrhœa, usually have very painful labors —especially the first; and that the subjects of menorrhagia were more liable to post-partum hemorrhage. In the case of *multipara* we may judge of the probable nature of the dystocia by the history of her previous labors. In this way I have known of hundreds of cases where the sufferings of the woman have been greatly palliated, and even almost prevented.

Not only should we enquire into the history of the previous labors—in their relation to the uterus, etc., but into the condition of the other organs at the time of labor.

If in previous labors, or pregnancies, the heart, lungs, kidneys or bowels were in an abnormal condition, we should select our remedies to accord with the abnormal condition of those organs.

In this connection it should be stated that the commonly received notion among women, that the distressing and painful sensation occurring during pregnancy must be borne without applying for relief, *because they occur during pregnancy*—should be abandoned, and it should be the duty of the physician to disabuse the minds of his patients of this erroneous belief.

Normal pregnancy, should not be attended by painful symptoms, consequently all such are abnormal, and demand relief, and the carefully selected homœopathic remedies will generally give relief.

The principal medicines indicated as prophylactics of dystocia, are:

Arnica, *Aesculus*, *Aletris*, the *Bromides*, *Caulophyllum*, *Cimicifuga*, *Collinsonia*, *Digitalis*, *Ferrum*, *Eupatorium Purpureum*, *Gelsemium*, *Gossipium*, *Helonias*, *Ignatia*, *Nux. Vomica*, *Pulsatilla*, *Secale*, *Scutellaria*, *Trillium*, *Senecio*, *Ustilago*, *Viburnum*, and *Veratum-viride*.

In order to have a clear understanding of the nature of these remedies, and their indications we will consider the various causes and conditions which relate to dystocia and mention the remedies indicated for such conditions.

Arnica causes an overstimulated state of the nervous system, especially the cerebro-spinal and the vaso-motor, leading to a stasis of the capillaries. When pregnant women complain of soreness of the muscles, lameness and weakness of the limbs, and such weakness of the capillaries that discolored spots appear upon the skin after slight pressure, the external use of aqua-arnica, and its simultaneous use internally, is of great value in preventing painful and difficult labors. It also prevents that extreme soreness and tenderness of the uterus and genital passages, which occurs even after normal labors.

Aesculus will remove many of the symptoms of painful pregnancy, particularly the lameness in the sacro-ischiatic liganients, but it is especially useful for the disorders of the rectum, which often cause great discomfort and lead to dystocia. It removes the tendency to hemorrhoids if given in time, and tends to prevent the occurrence of painful and protruding piles after labor. Premature labor is often induced by rectal irritation, and in such cases Aesculus will prevent that accident.

Aletris is a powerful tonic to the muscular system and the organs concerned in the process of nutrition. It is useful if the woman is weak, cannot endure exercise, has loss of appetite, and a constant sensation of weight and pressure downward in the pelvis. A few drops of a low dilution before meals will often restore the appetite and nutrition in a brief time. If the liver is torpid in addition to the above symptoms, and the woman has gastric catarrh, Hydrastis will be useful.

The *Bromides* are very useful agents in the treatment of the pregnant state.

Plethoric patients are often troubled with an undefinable nervous erethism, accompanied by hallucinations, morbid impulses, even sexual appetite in excess, horrible dreams, or exceeding wakefulness. The ordinary household cares worry them exceedingly, they are restless and sleepless, have rush of

blood to the head, vertigo, fainting, etc. In such cases I have seen such excellent soothing results from the bromides, with such an evident improvement in the general mental and bodily health, that I sincerely advise their use.

For the indications, consult the provings in symptomology of new remedies.

For general use I prefer bromide of *Soda*, but if there is decided inter-cerebral congestion, with pain in the occiput, and hemicrania, the bromide of *Ammonium* is preferable; while for purely mental aberration the *Potash* salt is the best. If the tendency to congestion of the brain is attended by scanty urine--the bromide of *Lithia* acts promptly. When hysteria and tendency to spasms are imminent, the mono-bromide of *Camphor* is of great utility. The dose of these preparations must be varied with the exigencies of the case. I have never seen good effects from them in attenuations.

From *one* to *ten* grains repeated at suitable intervals (one to six hours,) will be found to remove the above named morbid manifestations.

In cases of threatened cerebral congestion with cold hands and feet, flushed face, distended carotids, vertigo, incoherent speech, etc., I have often given twenty grains of the bromide of *lithia* with the result, as I believe, of saving life or preventing severe illness.

In the most violent cases of hysteria and hysterical spasms, from one to five grains of the 1x trit. of bromide of camphor often dispels the danger, if repeated every ten or fifteen minutes. During the latter months of pregnancy some women are so oppressed by cerebral congestion, that puerperal eclampsia is imminent. I believe this fearful accident may be warded off by the bold and judicious use of the Bromides. Even if uræmia is present, the bromides are not contra-indicated, for they aid in the elimination of the poison, acting as diuretics, especially where their use is associated with the administration of Apocynum, Apis, Cantharis, Helonias, etc.

Caulophyllum is one of those indigenous remedies which from the earliest occupation of America by the whites, has been

known to be used by the aborigines as a prevention to difficult labors. Nearly every tribe use this, or some analogous plant, the woman drinking a weak decoction of it, a few weeks prior to expected labor. We have not yet anything approximating a complete knowledge of its action on the human body; the provings are meagre and unsatisfactory. But from the large mass of clinical evidence, we deduce that it acts upon the smaller muscles, the uterus, and perhaps all other hollow organs. It appears to act on the muscular fibres which engage in expulsive action. Its primary action is to exalt the irritability of such muscular fibre, its secondary to depress. We may prescribe it in the absence of special indications in primipara, when the menstrual periods have been very painful, from *spasmodic* action, and where the pains of the dysmenorrhœa have been like labor-pains, and the discharge small in quantity and short in duration.—Or in multipara when the previous labors appear to have been violent, painful, the pains spasmodic, regular, but with rigidity of the os and soft parts. In very many cases I have prescribed the caulophyllum for these general indications and with the happiest results, the following confinement being natural and comparatively free from pain.

During the last fifteen years I have published in the various journals of our school many cases corroberative of its power over dystocia. Many such cases have been reported by physicians of our school in all parts of the world.

Besides its value in preventing excessively painful, tedious and slow labors, it has other powers equally useful. It mitigates, and often altogether prevents those annoying and distressing "false pains," so common to the women of our cities and large towns. These pains are generally located in the hypogastrium, they appear at nearly regular intervals, the paroxysms coming on every night for weeks, and the pains recurring every few minutes or every hour. They often extend into the limbs, up the sides, and in the abdomen. Some women are so irritated by these pains that premature labor is induced by them. In these cases not only does the caulophyllum arrest the pain, and make the last few weeks comfortable, but it gives

an easy labor, and according to the testimony of some of my colleagues, protracts by several days or a week the duration of pregnancy.

The *dose* of caulophyllum is an important consideration. It is claimed that good effects have been obtained from the third dilution, or the sixth trit of caulophyllin. In a few cases I can verify these claims, but in a majority of instances I prefer the lower attenuations. The violently spasmodic, very painful effects of the drug are primary effects,—the atonic paralytic effects, secondary. Therefore, while the middle attenuations will act curatively in very painful, spasmodic conditions, due to great irritation, the lowest preparations, even the crude drug, may have to be used for atonic conditions. Physicians of the Eclectic school habitually prescribe the tincture in five-drop doses, or the active principle in doses of fractions of a grain for weeks before confinement, with no alleged bad results. I believe I have seen dystocia, and painful symptoms during pregnancy, warded off by the third attenuation; but I have also seen the happiest effects from the 1x, 2x, and even drop doses, of the tincture, repeated every two, three or four hours. It is well to begin the use of caulophyllum a month or six weeks before full term, six or ten weeks, if the woman fears a premature labor at the seventh or eighth month,—a dose to be taken once or twice a day. It has been known to enable women to carry children to full term, who habitually had premature labors.

It may be well to mention a few practical hints as to the methods of administration. Pellets may be employed if the dilutions are used; large pellets will each absorb nearly a drop of the alcoholic mother tincture. The tincture or first dilution in drop doses, often causes an unpleasant burning in the throat. This may be avoided by prescribing it in simple syrup or gum-water. The low triturations of caulophyllin have the same effect, and may be avoided in the same manner. An elegant method of administering a definite dose of the active principle is in the form of a sugar or gum-coated pellet or granule, manufactured by several firms in this country.

These granules contain quantities from the 1-10 grain up to 1 grain. The former is best for use during pregnancy; the latter to facilitate labor.

Cimicifuga—Is a near analogue of caulophyllum, but has some notable differences in its method of action. 1. It acts upon the cerebro-spinal system, giving rise to spasmodic, neuralgic and myalgic pains. These pains and spasmodic motions are not symmetrical, but irregular, and tend to run into choreic movements. 2. It affects specifically the large muscles, and has the power of causing a variety of muscular pains, such as rheumatic, myalgic and spasmodic. 3. It affects the brain and mind, causing congestive headache, melancholy and mania.

All these conditions above named are well-known to be concomitants of the pregnant state, and lead to the most troublesome forms of dystocia.

Dr. Meigs (Obstetrics, page 260) asserts that a large proportion of the cases of "false pains" occurring during pregnancy are due to uterine rheumatism. He gives a clear and graphic description of such cases, and his opinion is very valuable. I have observed that many pregnant women who are troubled with "false pains," and who have very painful labors, and severe after-pains, have been subject to dysmenorrhœa, which was undoubtedly of a rheumatic character.

Now, of all remedies for rheumatic affections of the uterus, none are of greater value than cimicifuga. Its only rival is guiacum, or possibly salicin.

In many instances of abnormal pregnancy it is superior to caulophyllum, because of its wider range of action and greatly superior power. If the student will consult the latest full pathogenesis of cimicifuga, he will see the special indications fully set forth. My records of cases contain many wherein this remedy has removed profound melancholy, insanity, and a condition simulating delerium-tremens. These women might have been immured in lunatic asylums but for its curative power.

A frequent and distressing attendant of some pregnancies is the well-known "pain in the left side," under the left breast.

This pain may shift to the left ovarian region, or upward to the left arm, and even change to the vertex.

All these pains promptly give way to a lower attenuation of cimicifuga. Many physicians, especially those of the Eclectic school, value cimicifuga more highly than caulophyllum as an agent for the preventive of dystocia. The latter use it on general principles, they claim that it brings about a normal relaxation of the muscular structures, which if "rigid," would obstruct the progress of normal labor, that it gives tone to those muscles which have an expulsion function, and more, that it gives the nervous system that strength and tone so requisite in such cases. When speaking of the actual treatment of dystocia the indications will be more fully set forth.

As a general prophylactic of dystocia, it should be prescribed to be taken several weeks before full term, or otherwise, as set forth under caulophyllum, the active principle, *Macrotin* can be given in the 2x or 3x triturations.

Collinsonia has many points of resemblance to Aesculus. It acts upon the same organs and tissues, but has in addition a *toning* power, especially our muscular fibre. It will remove the obstinate constipation and hemorrhoids of the last months of pregnancy. It does this by restoring the normal irritability of the muscular coats of the intestinal canal. It is well known that during pregnancy, there occurs a *normal* or physiological hypertrophy of the heart, to compensate for the increased demand for a more powerful circulation. If the pregnant woman has a neurosthenic diathesis, this hypertrophy will be attended with an increase of the action of the heart far beyond its proper bounds. The pulse will reach 120, but regular when it should be 80 or 90. If the conditions above named all occur together, during the last month of gestation, dystocia would be seen to result, followed by an unfavorable puerperal state. Collinsonia in the attenuations from the first to sixth, it will be found efficacious if it is used patiently and persistently.

Digitalis is a far more potent medicine than the last named, and in many pregnancies is absolutely indispensable. By its judicious use a woman may be carried to full term, when suffer-

ing from cardiac disease, when without it she might not survive to reach the last months, or, if surviving, suffer miserably.

If a woman enter upon pregnancy with a "weakened heart," whether from functional or organic disease, the physiological "strain," which it is called upon to undergo, soon merges into abnormal conditions. In the so-called "irritable heart," when its action is *irregular*, *intermitting*, *weak* and *excitable*, no remedy compares with Digitalis in its controlling power. The patient, who before its use could not go up stairs, or take needed exercise, without distressing palpitations and dyspnœa, soon finds herself more comfortable in every respect. Digitalis acts upon the heart as does cimicifuga upon the uterus, regulating irregular action and imparting strength through its nervous supply.

A woman who goes through gestation with any organic heart disease, (except hypertrophy with thickening) is liable any moment to exhaustion, and even death from cardiac failure. But if the heart is kept *supported* by Digitalis, no such accident will occur under ordinary circumstances.

A weakened heart implies irregular and generally deficient bloodsupply in every organ of the body. In the brain we have ænemia or venus stosis, so also in the lungs, uterus and kidneys. The kidneys usually suffer most, for the irregular blood-pressure in those organs lays the foundation for those conditions known as Bright's Diseases, and consequent uræmia. Even if the heart is not complained of, and the patient has irregularity in the quantity of urine, at one time scanty and dark, at another profuse and watery, and especially if œdema of the face or feet is present, Digitalis should be prescribed. But it is useless to give Digitalis unless the proper *dose* is selected. The exclusive high, attenuationist will not see any good effects from it in the above conditions, for they *all belong to the secondary effects of the medicine*, and the scientific law of *dose* calls for material quantities. As a rule, a grain or two of the 1x Digitalis *leaves*, or the 2x of Digitalin or two or three drops of a good tincture, repeated three or four times a day will bring about good results. In rare cases the 2x will suffice. These doses can be continued days and weeks with none other than favorable effects, no "cumu-

lative action" is ever seen from these doses, and in these conditions. If *Anæmia* is present, and the patient fails in obtaining good blood from food, the use of Ferrum should always be associated with Digitalis. These two medicines act very harmoniously in such conditions, the iron cures the mal-nutrition, and soon enriches the blood, and the digitalis insures its normal distribution by means of a strengthened heart. I prefer the 1x trit. of *Ferrum met.* or *Ferrum lact.*, to any other preparation. Give the Digitalis before meals and the Ferrum after. Digitalis will also prevent hemorrhage after labor, when there is a predisposition to it. It acts on the uterus as it acts on the heart, inducing firm contractions.

Helonias has long had a reputation as a true "uterine tonic." The few provings made, seem to show that it resembles Cimicifuga, Aletris, Ferrum and Pulsatilla. Certain it is, that all the generative functions when disordered, seem to improve under its influence. Not only does it exert a profound influence over the uterus and ovaries, but the *kidneys* are included in its sphere of action. It has cured many cases of albuminuria and disquamative nephritis, and conditions simulating Bright's disease, and I predict it will be found one of our most efficacious remedies against uræmia. If a pregnant woman in the last months becomes enfeebled, pale, anæmic, dyspeptic, with albuminous urine, excessive or deficient in quantity, and has great depression of spirits, the Helonias should be prescribed in the 2x or 6x dilutions (or triturations of Helonin,) several doses a day until her condition has decidedly improved, and then repeated less often, up to the day of her delivery.

Gossipium is a medicine about which there is still an atmosphere of doubt and incredulity. Many physicians believe it to be a valuable uterine tonic, others deny its power altogether. The provings found in the new remedy, seem to show that it has some action on the uterus. It is probable that the fault lies in the difficulty of preserving intact the virtues of the root in any discovered preparation. The fresh root is certainly a uterine-motor, and has been known to bring on labor, or facilitate difficult parturition. It has been used for the same purpose as

Caulophyllum, as a preparatory agent for the purpose of bringing about natural and easy labor, and with alleged success. The dose is usually from five to fifteen drops of the tincture daily.

Pulsatilla.—I have for many years been convinced that the uterine affinities of this medicine have been greatly overrated. It may cause uterine blenorrhœa, venous congestion, and neuralgia, but I do not believe it to be a uterine motor. It removes many of the sufferings of pregnancy, such as toothache, prosopalgia, vomiting, indigestions, intestinal derangements, and anomalous nervous affections of the generative organs. In this way, if selected according to its symptoms, it may prove a remedy to ward off dystocia. As to its pretended power to change abnormal presentations of the fœtus in utero, I have not the slightest confidence. We know that spontaneous version is a common occurrence, and that it happens apparently when most called for, and at the very time when Pulsatilla would most likely be given for that purpose. Of its use during difficult labor, I shall speak in another place.

Secale ought, by its undisputed power over the impregnated uterus, especially during the last months of gestation, to form an efficient remedy against dystocia, when prescribed previous to that event. I am not aware, however, that it has been used as such, except in a few instances, and nearly all of those in my own practice. These cases were all characterized by the peculiar cachexia belonging to Ergot, in which there is a strong tendency to failure of the vital powers, a predisposition to hemorrhage, and a lack of vitality in the fluids of the body. If a pregnant woman becomes feeble, emaciated, with dry shrivelled skin, cold hands and feet, sensation of great weight in the uterus, and worrying false pains, and feels as if she should be sick any day during the last month; Ergot in small doses is the remedy, and especially so if her previous labors have been slow, feeble and followed by hemorrhage and long-lasting fœtid lochia.

Primarily in large doses it causes violent, persistent, tonic contractions of the uterus, with expulsive efforts, also vaso-motor spasms of its blood-vessels, but this is followed by a corre-

sponding depression of the motor power of the uterus, with vaso-motor paralysis. Thus, *secondarily* we have uterine atony with tendency to active hemorrhage. This gives us a clue to its true curative action as a preventive of dystocia. If we have reason to fear that the woman will be confined prematurely from want of tone of the uterine muscular fibre, or, if she goes to full term, only to have a slow, distressing labor, with deficient pains, lack of expulsive power, tendency to hemorrhage from deficient contraction, and finally sub-involution of the uterus, Secale, in a low dilution, may be given every day during the last month, with every prospect of success.

This powerful uterine-motor ought to prove one of the best of all remedies against dystocia. It is necessary, however, that we should have a correct understanding of its method of action, in order to prescribe it successfully.

(The dose I advise in such cases is one to five drops of Squibb's Fluid Ext. three times a day, up to the day of confinement, begining ten or fifteen days previously.)

Be *sure,* however, that the preparations used are reliable, for of all medicines Ergot is most likely to be inert. I prefer Squibb's preparations, or the French Ergotin, and am sorry to say that the tincture ordinarily sold cannot be trusted.

Ustilago.—This fungus, although a near analogue of Ergot cannot be said to be identical in action. It has more control over the un-impregnated uterus, and over the impregnated in the *early* months. It is of more value as an anti-abortive, and as a preventive of premature labor. It is especially indicated in a certain atonic condition of the uterus, when there is a passive hemorrhagic condition, the blood being black grumous, or muddy. There is but little pain attending this symptom, only a sense of weight in the uterus and much general prostration. During the last months of pregnancy, these symptoms are sometimes annoying and give rise to much anxiety. This anxiety is not without cause, for they portend a slow, difficult, and dangerous labor, on account of the atony of the uterus. During labor, hemorrhage difficult to control, may occur, owing to deficient contractility. This condition, however, may be pre-

vented by giving the lower triturations, several doses a day, for a week or more previous to confinement.

Viburnum.—This medicine which has of late become very popular in the treatment of dysmenorrhœa and allied affections of the uterus, has been called by the expressive name of cramp-bark, from time immemorial. I was, I believe, the first in our school, to call attention to the peculiar properties of this medicine, although it has been used in domestic practice for a century. Its common name perfectly expresses its remedial power. Its action on the nervous system gives it a decided curative power on *painful contractions* of muscles, particularly the flexors of the limbs, and those engaged in expulsive actions in hollow organs. Like Caulophyllum, Cimicifuga and Helonias, it had a reputation among the aborigines and early settlers of this country, as a *preventive of painful labor.* An infusion of indefinite strength was drank daily for a few weeks previous to expected confinement. Empirical experience has enabled us to define its range of action, and its curative power. It is indicated when the patient has been the subject of exceedingly painful dysmenorrhœa, or uterine cramps, accompanied generally by cramps in the limbs, abdominal muscles, or other parts of the body. In such cases it is to be considered probable that the woman will have a very painful labor due to cramp-like contractions of the uterus, with cramps in the limbs, etc. Associated with these symptoms will appear excessive erethism of the nervous system. All species of the Viburnum, which I have examined, contain a large percentage of Valerianic acid, which gives it great power over abnormal conditions of the nervous system. It is especially indicated for hysterical women, and when we have reason to fear that the labor will be complicated with hysterical spasms. Some cases of puerperal eclampsia are purely hysterical, and may be prevented by the previous administration of the Viburnum opulus, or Viburnum prunefolium. The latter possesses great power in preventing miscarriage and premature labor, and its use should never be neglected when painful, cramp-like pains attend any period of pregnancy, especially the last months.

The dose found most efficacious varies from a teaspoonful of the tincture, or fluid extract, to single drop doses of the mother tincture, or the IX dilution. These doses are perfectly harmless, for it is a uterine *sedative*, not a uterine-motor excitant. It is the opposite of Caulophyllum, Ergot or Ustilago. These doses should be repeated several times a day for weeks before labor, or every hour or two during the pains.

Veratrum viride.—My own experience and observation has convinced me that this medicine is invaluable in some cases of threatened and apparently inevitable dystocia.

In some constitutionally plethoric women the plethora increases to a great extent during gestation, and this condition is increased to a dangerous extent by the physiological cardiac hypertrophy.

An enormous quantity of blood is manufactured, and the body is not only fed to excess, causing great increase in its weight, but all the important organs are engaged. In such cases it must be expected that *convulsions* will occur upon the slightest exciting cause.

Apoplexy, both of the brain and lungs is a common occurrence in such an abnormal state. It is well known that cutting off the supply of blood-making food, will not always reduce the plethora, and venesection being virtually abhorred by the old school, is never seriously thought of by ours.

We have, however, in Veratrum viride a remedy, which associated with a low diet, will, in nearly every case arrest the inordinate plethora. This it does by slowing the action of the heart, and lessening its abnormal force. Under its influence I have known the bodily weight decrease several pounds a month, with general relief to the engorged head and lungs. It also decreases the abnormal arterial pressure in the kidneys, and is of great value in preventing serious renal congestion. Its sedative action on the cerebro-spinal system and the convulsion centre in the brain, tends to prevent the occurrence of puerperal eclampsia, for which accident it is almost specific.

The proper dose varies according to the susceptibilities of the patient, ranging from one drop of the first dilution (1x) to five drops of the mother tincture, repeated three or four times daily. It should be given largely diluted with water, and during its administration, strong tea and coffee, or spirits and animal food should be prohibited. The use of the alkaline mineral waters, Vichy, Seltzer or Kissengen aids its action.

Hydrotherapy.—The careful and judicious application of some of the measures used in the so-called water-cure system, are very efficacious in removing many of the ailments of pregnancy and thereby preventing dystocia.

Very many instances have come under my observation wherein women, who have failed to carry the child to full term owing to laxity of the uterine tissues, or irritability of that organ, have been enabled to give birth to a child at full term by means of the sitz-bath, etc.

Other cases I have known, where women have had tedious, difficult and dangerous labors, when a residence for a few months in a water-cure establishment, would seem to remove all the abnormal conditions, and their next labor would be easy and natural, nor followed by unpleasant sequelæ.

The *home*-treatment of pregnant women is not carried on as successfully as at a "cure," unless the patient has every means at her command, and also possesses a persevering and patient disposition. It is probable that the *rest* and freedom from domestic care, the systematic exercise and the excellent healthful diet, have much to do with the cure of such patients. But when a residence in a "cure" is not convenient, or feasible, the physician can give proper directions for the home treatment.

The three most useful hydrotherapic appliances are: the *sponge-friction bath*, *sitz-bath* and *wet bandage*.

In the majority of cases all three will have to be combined, especially when there is general, and local debility.

The sponge bath associated with smart rubbing or friction, with the hand or a brush, is a powerful tonic to the system;

providing the patient is *strong enough to bear it.* In case of feeble and delicate women it should be used with great caution, not repeated too often, or its use prolonged beyond a few minutes. It is not necessary to expose and bathe the whole body at once, but a portion at a time, leaving the rest clothed.

Alcohol, or spirits should never be put in the water, unless they leave a warm glow, and a soft, supple skin.

In very much emaciated subjects, the use of oil instead of water is a powerful means of *nutrition* and should not be neglected. It should be thoroughly rubbed into every portion of the body, and repeated every day or two, with a general water bath once a week. Even dry rubbing by a healthy person is a tonic to the muscular and nervous system if it agrees.

The *sitz-bath*, (hip-bath) is best adapted to relieve local congestions and weaknesses of the sexual organs. Of all the water-cure appliances this is the most popular, among weak and debilitated women. Properly used, it acts as a tonic to the circulation of the pelvic viscera.

The *modus-operandi* of the sitz-bath has been variously explained: My views of its action may be briefly stated. The *very hot* sitz-bath has nearly the same effect as the *very cold.* Both primarily control the external blood vessels and determinate an unusual flow of blood to the internal organs of the pelvis. But these extremes are rarely useful. The temperature of the water should rarely exceed 112°, or fall below 60°. At this temperature they rather equalize the pelvic circulation, and have a *toning* effect. They have doubtless a stimulating effect on other nerves than the vaso-motor, as it is well known that hot or cold sitz-baths increase the power of uterine contractions.

But, leaving out all theoretical explanations of their value, we know that the regular and persistent use of sitz-baths do greatly assist in the cure of chronic uterine disorders, and avert threatened miscarriage and prevent habitual abortions. We also know that they are a great comfort to delicate women in the last months of pregnancy, relieving false pains and many

other abnormal sensations. I have known many feeble women use the sitz-baths daily all through pregnancy, up to the very day of confinement, and more, I have known them pass the hours of labor in a sitz-bath. These women had previously suffered intensely all through their pregnancies, but they all declared that those baths prevented similar sufferings, and even mitigated greatly the pain of labor. The *temperature* of the water should be made to suit the feelings of each patient. Let them be their own judges.

The *duration* of the bath may be ten, or thirty minutes, and this too may be generally left to the sensations of each patient.

The *depth* of the water should be just sufficient to cover the hips, and rise to the crest of the ilia.

The *wet bandage* is another method of applying water, pure or medicated, that should not be neglected. There are patients who are not able to use hip baths, or are not pleasantly affected by them, yet these patients suffer from some or all of the following symptoms, namely: Sensations of soreness, tenderness or sensitiveness of the lower abdomen, weight, dragging and bearing down in the pelvis, constant tearing or burning pains in the sacral region, heat and fulness in the uterine region, and many other symptoms pointing to passive stasis of the uterine circulation, and weakness of its muscular structure.

In such cases the regular use of the wet bandage every night, and even day and night is followed by the best results, namely: the gradual removal of all the above symptoms. The bandage should be of light toweling, double or treble, and covered by one thickness of flannel or cotton drilling, and should be a foot wide. It should be wrung out in water cool or warm to suit the feelings of the patient, (*cool* is advised,) and changed as often as it becomes too warm or dry. The water may be medicated with Aconite, Arnica, Nux, Hamamelis or Cimicifuga, in proportion of one-half ounce to a gallon.

CHAPTER II.

THE ACTUAL TREATMENT OF FUNCTIONAL DYSTOCIA.

By the *actual* treatment is meant the application of medicinal agents which have the power to control or modify the conditions and symptoms which may arise during the progress of labor, and tend to produce an abnormal manifestation of that condition.

Extreme Slowness of the Labor.—A duration of eighteen or twenty hours in a primapara cannot be regarded as an alarming circumstance. But if labor is prolonged beyond this period, some assistance is demanded. Assistance may be given before, however, if certain symptoms arise. The *first* stage of labor, that of dilatation of the cervix, may be prolonged without danger; but the *second* cannot pass beyond certain limits, without greatly endangering the health of the patient, or the life of the child. It is found that the latter is lost at least one time in four, when the head remains in the excavation longer than seven or eight hours after the complete dilatation of the os uteri and the rupture of the bag of water; whilst it nearly always survives when the first period is prolonged to forty, fifty, or even sixty hours (*Cazeaux.*)

The first stage of labor, even prolonged as above, rarely presents any serious symptoms, except great fatigue, nervous irritation, loss of sleep, depression of spirits and alarm. These symptoms may be met successfully by proper food, gruels and broths, and the use of *coffea, cimicifuga, ignatia, aconite* and *cocoa.*

It is during the first stage of labor that we meet with those two conditions of the *os* and *cervix*, which cause great trouble and anxiety, namely:

1. *Rigidity of the cervix.*
2. *Spasmodic contraction of the cervix.*

Rigidity is a passive force by which the fibres of the neck of the uterus resist the dilatation they have to undergo.

Spasmodic contraction is an active force by which the fibres contract and diminish the size of the opening, previously exhibited by the mouth of the womb.

In *rigidity* the tissues seem dense, and like a piece of leather soaked in grease. The labor continues without dilatation of the orifice, which retains a certain thickness, against which contractions strive in vain, until the woman is exhausted with her fruitless efforts.

Pain in the loins, according to Madame Lachapelle, is a diagnostic sign of rigidity of the os.

Spasmodic contraction may occur after the cervix has attained considerable dilatation.

The orifice presents a thin cutting edge, and is warmer, drier and more sensitive to the fingers, and very irritable. This extreme sensibility—tenderness—of the neck is often the only symptom by which we can decide that we have a spasmodic contraction to deal with.

These two conditions must not be confounded with a neck which continues thick, simply because the contractions are *insufficient*, badly directed, or lost against some mechanical obstacle in the pelvis.

The obstetric authors of our school have always advised the same remedies for both conditions. Nothing could be more unscientific or irrational, for the conditions are opposite.

In *rigidity* the true remedies are—*Gelseminum*, *Lobelia*, *Veratrum-viride*, *Passiflora* (or Curare), and *Nux Vomica*.

Gelseminum, when the face is flushed, the woman is plethoric, dull and apathetic, the pains irregular in force and frequency, and not in their proper place—passing from before, backward, or occupying one side of the uterus—and the os is thick-sodden, but unyielding. The efficient dose is a drop or two of the tincture or 1 x. every half hour until the cervix relaxes.

Lobelia is next in value. It is indicated for the thick, leathery, unyielding cervix, and the reflex symptoms which arise from the obstruction,—the dyspnœa and nausea.

In some rare cases this medicine will have to be given until it causes general relaxation, but no vomiting need be induced. However, I think I should not hesitate to give it until vomiting ensued, if the rigidity did not yield, for I should only be imitating nature. In such cases vomiting often occurs spontaneously, with immediate relaxation of a rigid os. *Dose* usually the same as Gelseminum.

Veratrum-viride is useful in those cases where the old physicians considered "bleeding" absolutely necessary, *i. e.* when the woman was very plethoric, the head and chest congested, the pulse full and bounding, and eclampsia threatening. It should be given in doses of one to five drops of Norwood's tincture, repeated every hour. Usually three or four doses bring down the great blood-pressure, the congestion, and the cervix normally relaxes.

Passiflora or *Curare* are indicated if the rigidity seems almost tetanic, with a general tendency to tetanic stiffness, such as we will sometimes meet with in hysterical subjects. The dose is, of the former, 10 to 20 drops of the tincture every hour; of the latter, a few drops of the 1 x or 2 x dilution.

Nux vomica is also indicated in the same condition, especially if the woman feels the peculiar pains in the "loins," and a constant urging to stool.

Ignatia may better suit some women.

These remedies being *primarily* indicated should be prescribed in the tenth or thirtieth attenuations. A single dose is often sufficient.

I have induced the needful relaxation in some cases without the use of medicine, by placing the woman in a *sitz-bath* for half an hour or more, and injecting, at the same time, warm water against the os.

I think I have observed that the internal administration of the remedy, particularly Gelseminum, was aided by applying

it topically. Saturate a tampon of cotton or soft sponge, with a warm solution of glycerine and water, equal parts, and pour upon it a few drops of the medicine. Apply this to the rigid *os* and allow it to remain.

Spasmodic Contraction of the os and cervix requires the following remedies:

Aconite, *Amyl*, *Belladonna*, *Conium*, *Caulophyllum*, *Cimicifuga* and *Viburnum.*

Aconite, when the patient has the usual restlessness, anxiety and fear of death, some fever, with fine, small hard pulse, the vagina and os dry, hot and sensitive. Here the 3x or 6x acts promptly—especially so if we apply it topically, as above recommended.

Amyl Nitrite.—Although no cases are on record where this agent has been used for the specific purpose of relaxing a spasmodically constricted *os*, it has been used by some English and Continental physicians in "very painful labors," and with alleged good results. The most painful of all labors are those in which there is spasmodic constriction of the *os*, with spasmodic contractions of the uterine body.

The pathological condition is similar to that which obtains in Angina pectoris, or dysmenorrhœa from constricted cervix. The value of Amyl in both these conditions has been established. It should prove equally useful in dystocia from spasm of the os. A few drops, not more than *five*, should be poured into a small vial, on a little cotton, or upon a handkerchief, and the patient be directed to inhale deeply eight or ten times, or until the face flushes and the head throbs. When this occurs, the constriction of the os will be observed to relax, and allow the expulsive efforts of the womb to accomplish their purpose. Instead of inhalation, the Amyl may be given internally, a few drops every ten minutes, of the 2x dilution.

Belladonna has been alternately praised and denounced as a remedy in "rigid os." This conflict of opinion is explained by Cazeaux, who writes: "The belladonna, so highly lauded by some accouchers, is by others thought to be useless. It seems to me that this difference of opinion has arisen from confound-

ing *simple rigidity* with *spasmodic contraction.* Though without action in the former case, I think it very useful in the latter."

We have the same difference of opinion in our school, often from the same cause, but generally on account of a want of understanding of the relation of *dose* to primary and secondary effects of medicine. In order to prescribe Belladonna with any approach to scientific precision or curative effect, we must know something as to its method of action, which of its effects are primary and which secondary. The primary action of Belladonna, (also Conium, Hyoscyamus, Stramonium, and Solanum,) is to *relax and paralyze the sphincters of the orifices of hollow organs,* but not the muscles of the organs themselves. Its secondary effects are just the opposite, the *sphincters are affected with spasm and constriction,* and the muscular fibres of the walls of the organs themselves, weakened.

Now according to the only *law of dose* known, Belladonna should be given in a high potency when we have symptoms simulating its primary effects, and in low attenuations when the symptoms resemble its secondary effects.* In cases of spasmodic constriction of the cervix, Belladonna is secondarily indicated, and no possible benefit can arise from its administration in highly attenuated doses. *The low dilutions must be used, and often the material substance itself. Give internally the 1x or 3x, and apply to the cervix, with the finger a mixture of one grain of the solid extract, or ten drops of the tincture, in a dram of glycerine, lard or cosmoline, or a small ball of cotton can be saturated with the glycerine, and placed against the os.

Conium has some reputation in spasmodic conditions of the sphincters, and circular muscle-fibres. It has removed laryngismus, and œsophageal spasm. I cannot, however, subscribe to the dogma that "any remedy will remove rigid os, if its other symptoms correspond," for if it does have all the other symptoms, it may not have that symptom of the os, and cannot therefore be completely homœopathic to the case.

*No rational physician can believe that the 30th of Aloes or Podoph, would purge or the 6th of Ipecac vomit nor can we expect the 30th of Belladonna to relax a sphincter.

Hyoscyamus and *Stramonium* both cause primarily paralysis of circular muscle-fibres, and if the patient has other characteristic symptoms of these medicines, they may be indicated instead of Belladonna. I once removed a spasm of the cervix with *Solanum*, (a close analogue of Belladonna,) selecting it for the peculiar occipital headache and amaurotic symptoms.

Cactus causes primarily, a spasm of the circular fibres of the heart, and has been successful in spasmodic dysmenorrhœa. If the woman has the cactus-heart symptom, so well known, I believe it would remove the constricted cervix. Perhaps it would be successful even if that symptom were not present. The 6th would be indicated, or even the high potencies.

Lachesis would be indicated, especially if its throat symptoms were present, and here the 30th or the very highest potencies would be useful.

Caulophyllum irritates all circular muscles, by its primary action, the constriction is *intermittently manifested*. This is precisely the condition of the cervix in the worst cases. The uterine pains will be very severe, the contractions of the fundus strong, but the cervix will also contract powerfully, and neutralize the uterine contractions, the head does not engage. In the 2x or 3x dilution (or trituration of caulophyllin,) it will promptly remove this condition. Larger, often repeated doses would *aggravate*, they are only useful in general uterine atony.

Cimicifuga has a similar action, but the pains are irregular, the contractions irregular, and the cervical constriction irregular. One moment it would seem as if the os would sufficiently expand, the next it is firmly closed by spasm. Moreover, the patient is nervous, depressed in spirits, her hands and legs tremble, her pulse is quick and weak, and there is irregular twitching and choreic movements, and a dull heavy headache in the brow and eyes. When these symptoms occur, the attenuations from the 3x to 9x will be found useful, they should be repeated every few minutes.

Viburnum, from its wonderful power over spasmodic dysmenorrhœa, ought to prove very useful, and act very promptly in spasmodic stricture of the cervix, especially so, when the

patient has very violent pains, almost driving her distracted, attended by uncontrollable nervous excitement, cramps in the legs, thighs, and abdomen. It is primarily a uterine sedative, its spasmodic effects are secondary. Empirically it has acted best in appreciable doses. I have never observed it to remove spasmodic pains when given in the attenuations above the 2x, but have seen the most happy effects from doses ranging from 10 to 60 drops of the tincture, or 1x dilution, frequently repeated. No aggravation need be apprehended, for it is harmless, and I have known much larger doses used, with only pleasant results.

But the *second stage of labor*, if extended beyond ten or twelve hours, presents symptoms which need attention. The pains become irregular, both in frequency and intensity, the fœtus seems to retrogade instead of advance, because the pains are not expulsive. "This local disorder is soon followed by violent trembling, the woman vomits bilious matters, she is uneasy and excited, and changes her position every moment, the skin is hot and dry, the pulse runs up to 100 or 150 per minute, the tongue is dry, and sordes on the teeth. The vagina and cervix are hot, sensitive to the touch, and a yellowish liquid escapes from them, which occasionally has a fœtid odor, the pressure of the child's hand on the neck of the bladder prevents the emission of urine." (*Cazeaux.*)

The above picture is one of an extreme case, a condition which I cannot imagine could obtain in the hands of a competent physician, for we have many remedies which can prevent such an array of symptoms, the chief of which are *Aconite*, *Baptisia*, *Cimicifuga*, *Caulophyllum* and *Pulsatilla*. This will be seen by a brief comparison of the symptoms of these remedies, with those of the abnormal condition. Besides these medicines I consider the *sitz-bath* to be of the greatest efficacy. Should I find a patient in the second stage of labor with the above serious symptoms, I would immediately give her the remedy indicated, and have her placed in a deep sitz-bath of a temperature of 100°, and kept there till she felt faint, or till the natural pains and expulsive efforts came on actively. I would do this

before resorting to the use of *forceps*, because the patient and the child would be better off for it.

But we will now consider the special causes that may bring about the above abnormal *second stage*, namely: *Slowness* or *feebleness of the contractions.*

This condition may occur at the very commencement of labor, and persist to the end, unless the appropriate remedy is given.

It is sometimes, but *not often*, due to *general* debility of the muscular system, for it is a well-known fact that the most feeble patients, as those in consumption, often have the most powerful pains, and the most rapid labor.

When the feeble pains are due to *general* atony, words of encouragement, small quantities of broth or beef tea, or a few spoonfuls of wine, frequently repeated, are of great service.

Caulophyllum tincture in drop doses, or caulophyllin, 1 x, or 1-8 gr. pills, repeated every half hour, even before the *os* is dilated, will have an excellent effect in increasing the natural uterine action. This remedy seems to affect specifically all the muscular fibres of the womb in a manner simulating *natural* labor. This explains why it appears to *relax* the os in cases of rigidity.

Cimicifuga is best indicated where the pains, besides being feeble, are *irregular*, and are not always in the same place, —now on one side, now on the other, now in front, then in the back. The *os* does not relax, and the woman is depressed in spirits, taciturn, and has jactitation of the limbs. The lower attenuations are indicated.

Pulsatilla is indicated for these changing, erratic pains, but the woman *weeps*, *scolds*, *frets*, and tosses about in bed, and is very "fidgitty."

China is of great value in such cases, but it should be given in appreciable doses, namely, a teaspoonful of the *wine of cinchona*, repeated every hour or two; its alkaloid, *Quinine*, however, gives the best results. Many eminent obstetricians believe that Quinine possesses parturient power similar to Ergot, but I doubt its supposed exito-motor power over the uterus.

It causes natural uterine pains, because it is secondarily homœopathic to muscular atony, when due to inefficient blood pressure and decreased nervous supply. In many cases of general exhaustion, with cool, sweating skin, feeble, quick pulse, and very feeble *pains*, I have seen almost magical results from the administration of half a grain or a grain of Quinine every half hour. The pains begin immediately to increase, the pulse is stronger, and the woman becomes greatly encouraged. The obnoxious taste of the drug is readily disguised by mixing it with syrup of glycerrhiza (gr. 1 to 1 oz), or the use of gelatin-coated pills, of a grain or a fraction. In cases of alarming prostration, five or ten grains at a single dose has often seemed to rescue the woman from collapse.

I ought to add that the physician must not mistake the *condition of* the womb in cases of feeble pains. *Excessive distension of the uterine walls* often causes very feeble and irregular pains. The uterine walls become so thin that they are benumbed, and cannot contract while so distended. This condition may be diagnosed by an *examination*, when the bag of waters will be observed *not* to bulge during the pain. In such cases, if the *os is not rigid*, the remedy is to rupture the bag of waters, and *then*, if good pains do not set in, give one of the remedies just mentioned.

Slowness or *feebleness of the contractions* may depend upon sanguineous engorgement or plethora of the uterine tissues. This condition may be diagnosed by the following signs: The pains are at first quite energetic, but soon diminish, both in frequency and intensity, the cervix uteri is soft, supple and non-resistant, but the presenting part of the child does not engage during the pain, which latter is equally diffused *over the whole abdomen*. The phenomena of *general* plethora nearly always manifest themselves at the same time, the respiration becomes laborious, the pulse hard and full, and the pains irregular both in force and frequency. In these cases the old practice is, or was, to bleed, for it is very rarely resorted to now.

We have remedies, fortunately, that will control this condition without debilitating the system.

Gelseminum, if the face is flushed, the pulse *full*, but not *very* hard, the head feels heavy, the senses apathetic, and the pains feeble and irregular, will soon remove the plethora if administered in the low dilutions.

Veratrum Viride is indicated in a higher grade of congestive phenomena; when the head aches *violently*, the pulse is *very full, very hard and quick*, and convulsions or apoplexy threatens; and especially if the temperature of the patient is high—103° or 105°.

Prompt results will accrue from two or three drops of the 1-10th, repeated every hour.

Cactus will be useful if the heart is violently excited, and there is a sense of *constriction* about it.

Bromide of Soda (5 grains every half hour) has often removed this plethoric condition, when actual fever was *not* present, and there was great nervous erethism.

Aconite is not indicated, and should not be used unless the pulse is *small, hard* and *quick*, and there is great anxiety and fear of death.

If the feebleness of the contractions be solely due to uterine debility, a weakness of its muscular tissue, while the general muscular system is healthy and strong, we must select remedies which specifically *cause* this condition.

In such cases the woman will exert great strength; will "bear down" very powerfully, and pull violently on the hands of the attendants; but the physician will observe by "touching" that the head does not advance, although no obstacle to its progress is present.

Here we have admirable remedies in *Caulophyllum, Cimicifuga, Cannabis indica, Secale, and perhaps Ustilago.*

The same medicines are equally useful in *sudden cessation of the pains*, either from exhaustion, or some unknown cause. *Caulophyllum* is preferable where the pains are exceedingly feeble, and far apart, or when they have been very violent, but intermittent, and then cease altogether. Give the tincture, ten to thirty drops every fifteen or twenty minutes, or the Caulo-

phyllin one-tenth or one-fourth grains as often, or until good pains appear.

Cimicifuga is superior to Caulophyllum, if the feeble and inefficient pains are irregular, both in intensity and recurrence. The general system partakes somewhat of the same aberration. It is a greater neurotic remedy than Caulophyllum, and its power over the uterus depends on its action through the spinal and sympathetic system. In cases of sudden suspension of pain and expulsive efforts due to depression of mind or nervous exhaustion, Cimicifuga is specific. The most efficient dose lies between the tincture and second dilution, in drop doses, or from the 1x to the 3x trit. of macrotin. Cimicifugin in one grain doses, repeated every 15 or 20 minutes, until the pains are efficient.

Cannabis indica in doses of five or ten drops of the tincture repeated every 20 minutes have been found to increase inefficient pains, or bring back suspended ones. It doubtless acts upon the enfeebled nerves which supply the uterus, stimulating them to normal action.

Electro-Magnetism properly applied has been known to act well in such cases, after all medicines have failed. The *positive* pole should be applied to the lumbar region, the *negative* to the os, in the vagina, and a mild current, (induced,) should be applied between the pains, and suspended during their continuation, or, if no pains are present, the current should be applied for five minutes, with intervals of the same duration.

Secale has been used by the dominant school for nearly a century, for the purpose of inducing uterine expulsive efforts. At first its powers were not understood and it was given in all stages of labor, when the pains were feeble or absent. It was found that in many cases its effects were unpleasant, and dangerous, or no apparent effects were observed. As its action became better understood, it was found that if given before the os was dilated or easily dilatable, it caused violent, persistent, painful contractions, which were not only useless to expel the child, but were the means of its death.

The intense and unintermitting pressure cut off the fœtal circulation, and the child died of asphixia *in utero*.

Even in cases where the os is dilated, the constant pressure caused by Ergot will produce the death of the child before it is thrust into the world. Its use among the best accoucheurs of the old school is now limited to those cases where, after the os is dilated, labor does not advance, owing to feeble expulsive power, the size of the child, or smallness of the passage. Many of the more cautious do not advise it until just before the head escapes from the vulva, and then only for the purpose of insuring a firm, final contraction, in order to prevent hemorrhage, open or concealed, or the formation of an intra-uterine clot. They prefer the use of *Forceps*, for the purpose of facilitating the labor. In this I think they are judicious, for the safety of the child and the integrity of the perineum, is greatly enhanced by their skillful use.

If the pains are simply feeble and inefficient the careful application of the pocket-forceps, (see another page,) and in such a manner as to *imitate* the natural expulsive efforts, and *aid* the inefficient pains, is much more efficacious and desirable than a resort to such a powerful agent as Secale. If, however, the accoucheur has not the forceps with him (and he always should have), and the pains are very feeble, slow and inefficient, or altogether absent, and the os is dilated, the presentation favorable and perineum distensible, Secale should be administered. I must here protest against the absurd advice given by some writers of our school, of giving the 30th or 200th in such cases. As well might we expect to cure diarrhœa with the 200th of Epsom Salts. Only appreciable, material doses of Ergot will excite or originate uterine contractions. Any observations to the contrary are based on a delusion, or coincidence.

There are several methods of administering Ergot in such cases. 1. The old method of infusion—30 to 40 grains of the powder in an ounce or two of hot water; a teaspoonful every ten minutes, or all in three or four doses, half an hour apart; or, (2) 15 or 30 drops of a Fluid Extract at similar intervals;

(3) a teaspoonful of the wine of Ergot, as above; or, (4) Ergotin in gelatine-coated pills, containing three grains each, one every quarter or half hour. The drug should be suspended on the appearance of strong bearing-down pains.

Ustilago, or the Corn Ergot—is supposed to have similar properties, as Secale, but it has not been sufficiently tested to enable us to use it with confidence. The dose is the same as Secale.

Gossypium, or Cotton-Root, is praised by many southern physicians as a good substitute for any of the above medicines. In several cases of slow labor in the last stage, I have given teaspoonful doses of the fluid extract. It appeared to stimulate to more efficient expulsive efforts. It is said that a decoction of the fresh root is the most efficient preparation, but the use of this would be restricted to the localities where the plant grows. We need further experience with Ustilago and Gossypium to determine their real powers.

Sudden cessation of the pains may be caused by influences from without. Disagreeable impressions, occurring during labor—like the presence of disagreeable persons, the arrival of a physician, especially if he be not the one expected,—may determine the cessation of the pains.

Aconite is the remedy if the cause is akin to a *fright.*

Chamomilla, if the patient is vexed or made angry.

Other remedies may be selected according to the causitive influence, not because the medicine affects the uterus directly, but because it acts upon the mental or moral origin.

During the progress of labor *acute pains in some other portions of the body* may occur and arrest the labor until the extraneous pain is removed.

Violent vomiting may occur, and will require the administration of Ipecac, Iris, Nux vom. or Verat. alb.

Lumbar pains, severe and sharp may require Belladonna, Cimicifuga, or Rhus.

Colic may require Chamomilla, Dioscorea or Colocynth.

Violent cramps in the thighs, legs or calves, so graphically

described by Prof. Meigs, may set in with such severity as to totally arrest the uterine contractions. They are supposed to be caused by the pressure of the child's head upon the sacral nerve, and no remedy is capable of relaxing these until the pressure is removed. Here the Forceps should be promptly used, or chloroform or ether given. Should the cramps continue—as they sometimes do after the pressure is removed—Arnica, Colocynth, Verat. Alb, or Viburnum are useful.

Congestion to the head has been known to occur suddenly during labor, with sudden disappearance of the pain. In such cases, nurses say, "the pains have gone to the head." I have met with several such cases. The patient suddenly puts her hands to her head—the pain was severe; there was flushed face, vertigo, dimness of vision, throbbing, ringing in the ears, pulse full, hard, etc.

One such cases was soon relieved by ten drops of tincture Verat. Viride, and another by the administration of thirty grains of Bromide of Lithia, which effected amelioration in thirty minutes.

In the former case, Verat. Vir. was selected because the pulse was *very hard*. In the latter the pulse was *not* hard, but *full* and *soft*.

Solanum and *Belladonna* will be useful if other symptoms call for them.

Violent pains in the uterus, or pelvis, from pressure of the child's head, may be so intense that the woman cannot make any effort, at a time when her efforts are necessary to the termination of labor.

I have met with cases where the pains were so spasmodic, cramp-like and agonizing, that labor actually came to a standstill. In some cases a hot sitz-bath will give almost immediate relief, so great, that the woman will beg to be allowed to remain in the water. In other cases there is nothing to be done but to remove the child with *forceps*, or give chloroform to induce anæsthesia. In a few cases I have known medicine to allay these pains. In one instance a teaspoonful of tincture of *Caulo-*

phyllum gave relief in ten minutes, probably by changing the position of the child's head. In another case *Viburnum opulus* in a similar dose, relieved the pain after three doses half an hour apart. Theoretically *Secale* 30th ought to relieve the *agonizing, constant* pain which sometimes occurs.

Cases are on record where Hyoscyamus, Coffea, and Chamomilla are said to have relieved these unnatural pains.

Irregularity of the pains.—Under this head Cazeaux describes certain kinds of pains which he also terms *uterine-tetanic* pains.

He mentions several varieties:

1. "There is not a complete and perfect interval between them, they are continuous, and only interrupted by the paroxysms, during which the intensity of the suffering is terrible. This variety as above stated, would call for Secale 30 according to a strict application of the law of *Similia*. Here, evidently, chloroform ought to be given, until the pains cease or give way to natural ones. If chloroform was not admissible I would certainly try *Amyl, Calabar or Chloral Hydrate*, either of which in proper doses, would, in a short time, ameliorate the pains.

2. "The pains return, it is true, at intervals, but sometimes it is only the fundus, again one of the angles, and at others, some part of the uterine body, which contracts spasmodically, while the remainder scarcely does so at all."

They have no effect on the progress of labor, except to retard it. The hand on the abdomen notes the irregular contractions of various parts of the uterus. The membranes do not bulge, nor the head press down. In these cases the warm *hip-bath* may do much good.

Cimicifuga may prove an excellent remedy, if the woman is nervous and depressed, the whole body jerks, and the limbs twitch, (choreic motions.) (See Cannabis Indica.)

Gelseminum has proved the curative remedy in several such cases, under my care; and recently, a Dr. Fauntleroy reported a case to the *Virginia Medical Society*, which verifies my experience. He writes:—"I was called in consultation and the follow-

ing history was elicited: In the *three* previous confinements, from the exhaustive continuance, for two or three days, of the inefficient contractions, marked by frequent pulse, coated tongue, and mental wandering, the doctor had been forced to relieve his patient by a resort to instruments. When called upon, the labor had commenced, the os uteri was partially dilated, *not at all rigid* but the contractions evidently involved different planes of the uterine muscular tissue, first in one part, then in another. The writer suggested the use of Gelseminum. Eight drops of the fluid extract were given every hour. After the second dose the uterine contractions became more general, and when the patient had taken eight doses, she was delivered by the unaided forces of nature, of a large healthy child.

Pulsatilla.—If this medicine is ever indicated in unnatural labor, it is applicable in this variety. The genius of this remedy makes it applicable, not only for irregular contractions of the uterine muscles, but contractions which *fly* from one set of muscles to another, in the uterus, or from the uterine muscles to those of other parts of the body. The mental state of the patient affords valuable indications for Pulsatilla. With irregular, inefficient pains the woman often weeps, complains, is greatly agitated, and cannot be encouraged. Here, Pulsatilla would be indicated.

Aconite would be useful, if the patient has an uncontrollable anxiety and fear of death, the skin is cold, and the pulse small and feeble, (primary,) or, she becomes hot, feverish, with hard, small pulse, thirsty, delirious, and has slight convulsive motions.

Ignatia covers many of the symptoms of this condition.

Dioscorea may prove useful, especially if the uterine muscular-cramps suddenly cease, and appear in the bowels, hands or feet. (See "*Symptomatology of New Remedies.*") Before closing this chapter I cannot omit to mention a remedy, which under certain circumstances proves most efficient and harmless in the treatment of *false labor*, or irregular uterine contraction.

I allude to *Opium and its preparations.* They are not homœopathic to this condition, any more than Chloroform or Ether,

but act as palliatives, giving the tortured organ needful rest, after which, it takes up its normal action.

Cazeaux says: "Under the influence of Opium, given in the form of enema, (into the rectum,) 20 or 30 drops in a few ounces of water, the pains entirely disappear in the course of half an hour. During this period the patient generally slumbers, and then the good pains, that is, the natural and regular ones, come on, and the labor terminates happily.

In several cases of peculiar obstinacy, where neither the homœopathic remedy, nor chloroform changed the unnatural character of the pains, I resorted to an enema of 20 drops of McMunn's Elixir of Opium, and the improvement set in in less than half an hour, and after an hour or two of sleep, natural labor commenced in earnest.

In one case two doses, half an hour apart, of one-eighth of a grain of Morphiæ acetas had the same effect.

CHAPTER III.

STRUCTURAL DYSTOCIA.

By structural dystocia is meant difficult labor, dependent on abnormal conditions or developments of the fœtus or mother; we have therefore two varieties of structural dystocia—fœtal and maternal.

We shall first consider the fœtal variety, the most frequent form of which is found in transverse presentations.

SHOULDER OR ARM PRESENTATIONS.—There are in presentations of the shoulder or arm four positions, as follows:

1. *Anterior Dorsal Position.*—The right arm and shoulder are at the brim, the occiput is forwards, the head in the left iliac fossa, the back across the lower third of the uterus, the breech upwards and to the right.

2. *Anterior Dorsal Position.*—The left shoulder at the brim, the head in the right iliac fossa, the breech to the left, the feet and arms at the back.

3. *Posterior Dorsal Position.*—The left shoulder and arm at the brim, the head and face in the left iliac fossa, the abdomen and the limbs obliquely across the anterior of the uterus, and the breech to the right.

4. *Posterior Dorsal Position.*—The right shoulder and arm in the pelvis, the head in the right iliac fossa, and the breech to the left.

Diagnosis.—In presentations of the superior extremity, *i. e.*, either the shoulder, elbow, or hand, the SHOULDER is known by its being more pointed than either the head or the breech. You recognize it by feeling the clavicle and spine and acromion process of the scapula by the axilla; and, above all, by the ribs,

PLATE IX

Fig. 2

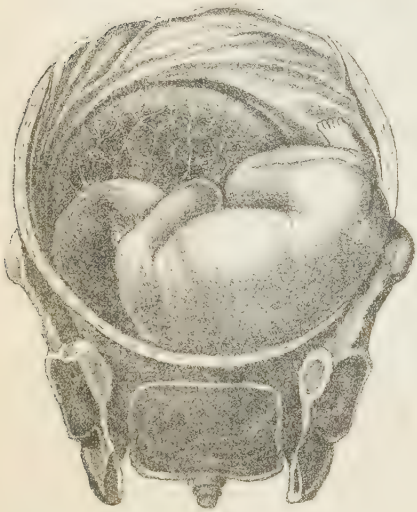


Fig. 1

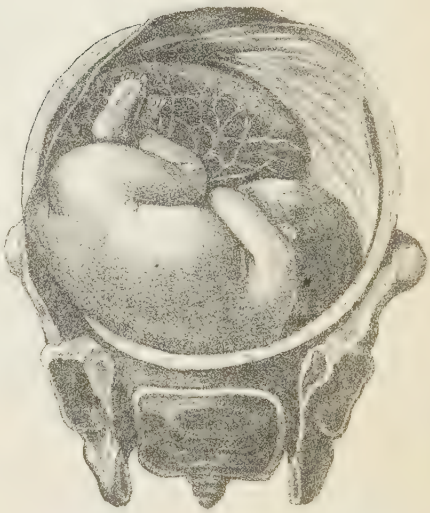


Fig. 4

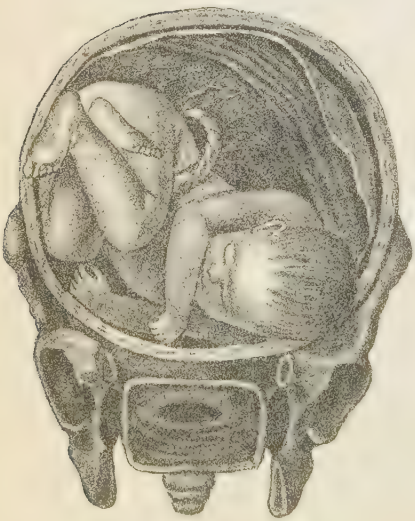
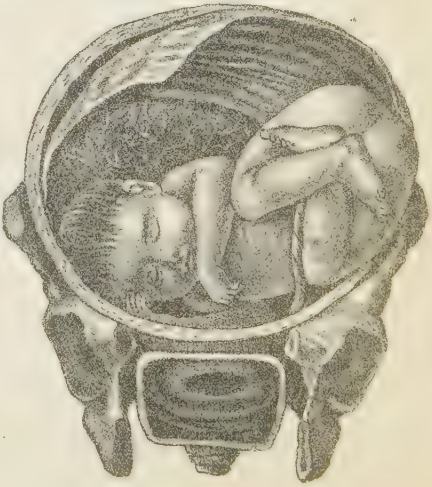


Fig. 3



Explanation of Plate Nine.

TRANSVERSE PRESENTATIONS.

Fig. 1 shows the first position of shoulder presentation.
Fig. 2 shows the second position of shoulder presentation.
Fig. 3 shows the third position of shoulder presentation.
Fig. 4 shows the fourth position of shoulder presentation.

which will at once distinguish it from any other part of the body. The *elbow* may be recognized by the sharp prominence of the olecranon, situated between two lesser prominences, the condyles. The *hand* is known by being longer, broader, and flatter than the foot, also by the fingers being longer and more movable than the toes, and finally by the thumb, which can be brought across the palm. For differential diagnosis see page 270.

When the superior extremities present, the child is placed transversely with regard to the pelvis. Delivery in this position is almost impossible, but still may take place in rare exceptional instances, by a natural process of expulsion, to which the name "spontaneous evolution" has been given. Such an unusual occurrence should never be depended on in practice. The presentation should be altered by turning.

Version or Turning.—By version is meant substitution of another part than the one presenting. There are two varieties of version known as cephalic and podalic.

Cephalic Version consists in bringing the head to present at the brim. It is practicable only to a certain extent, and the method of operating, or rather the different steps in the process of converting a given malpresentation into an ordinary cranial presentation, must necessarily vary with the nature of each special case. In all we should be careful to secure as much muscular relaxation as possible by placing the patient on her back, with the legs drawn up, and in the intervals between the pains, we may possibly succeed by external manipulation alone in correcting cases of fœtal obliquity, and even of shoulder presentation, provided only that the uterus is relaxed, and especially that the membranes are entire. Sometimes, in cases of uterine obliquity, where the child lies with its head resting on one or other ilium, it is well to turn the patient over to the same side as that in which the head is placed; in this way the breech at the fundus rolls down as it were to the side which is most depending. This will act as a lever upon the uterine ovoid, and raise the lower or head end of the uterus, so as to facilitate its return to the brim. The uterus should now be kept fixedly in

this part, and a very little internal manipulation will suffice to bring the head into its proper position. As soon as this is secured, the membranes should be ruptured, the uterus will speedily contract, and thus the normal position will be maintained. Pressure, by means of a pad or cushion in either iliac fossa, will prevent the head from again passing in that direction, and if the labor now progresses, the operation will be certainly successful. If it goes on languidly and the uterus still seems obliquely inclined, it will be better to apply the forceps at once, and so as to secure the head in the position desired.

Where the hand is presenting, either with or without the head, the former must be pushed up and the head pressed down by external manipulation, care being also taken in regard to the position of the patient, according to the observed tendency of the case. The same remarks apply to the case of funis presentation; we should pass the cord up and press the head down, applying the forceps, if necessary, to complete delivery speedily.

Podalic Version consists in bringing the feet or breech to present at the brim; there are two methods of doing this, the first is known as combined external and internal version. As its name implies, the operation consists of both internal and external manipulations, without the actual introduction of the hand and arm into the uterus.

The successive steps of the operation are thus described by Dr. Hicks: Having lubricated my left hand, I introduce it as far into the vagina as is necessary in order to reach a finger's length within the cervix; sometimes it requires the whole hand, sometimes three or four fingers will be sufficient in the vagina. Having clearly made out the head and its direction, whether to one side or other of the os uteri, I place my right hand on the abdomen of the patient towards the fundus. I then endeavor to make out the breech, which is seldom a difficult matter. The external hand then presses gently but firmly the breech to the right side; as it recedes, so the hand follows it, either by gentle palpitations, or by a kind of gliding movement over the integu-

ments, while, at the same time, the other hand pushes up the head in the opposite direction, so as to raise it above the brim.

Fig. 30.

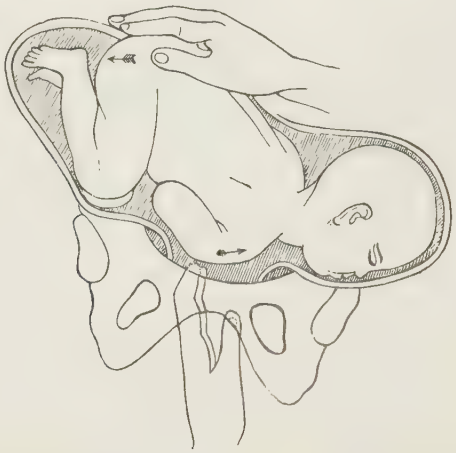


Fig. 30 shows the manner of making version by external and internal manipulations—pushing the shoulder up and the breech down.

When the breech has arrived at about the transverse diameter of the uterus, the head will have cleared the brim, and the shoulder will be opposite the os. That is pushed on in like

Fig. 31.

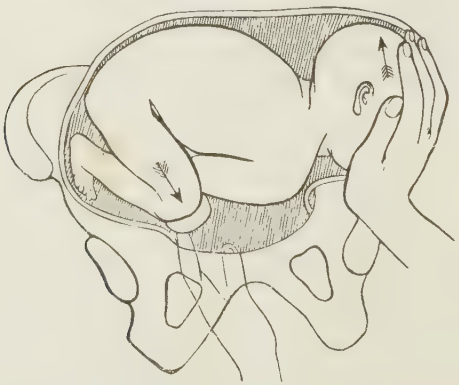


Fig. 31 shows version by external and internal manipulations—pushing the head up and bringing the knees down.

manner as the head, and after a little further depression of the breech from the outside, the knee touches the finger and can be hooked down by it. Should it be difficult to hook down the knee, depress the breech still more, and it will be almost always the case that the foot will be at hand. Again: Should the child face towards the left side, the only difference required in operating is, that the breech be pressed toward the left side, and the head to the right.

In this, as in the other methods of version, we should endeavor to limit our manipulations to the intervals between the pains, as the child can be moved much more readily than when the uterus is firmly contracted upon it.

The advantage of this mode of operating in all cases where it is applicable is sufficiently apparent. The difficulty, trouble and suffering necessarily incident to the introduction of the entire hand and arm into the uterus is thus entirely saved. Moreover, it can be performed at a very early period in the labor, when the os is but slightly dilated; as soon, therefore, as the malpresentation is diagnosed, and long before the child has become fixed in its evil position—in such cases as arm, shoulder, and neck presentations—this is of the utmost importance; so also in cases of convulsions, where the introduction of the hand and arm seems often to do harm, and in placenta prævia.

Failing by this process, the next thing to be done, is to insert the hand into the uterus, and bring down one or both feet; the mode of operating is as follows: The patient should be placed in the usual obstetric position, across the bed with the legs well drawn up to the abdomen, and the knees separated; the nates also should be close to the edge of the bed, and the head and upper part of the trunk should be on a level with the pelvis; the bladder and rectum should be previously emptied, and the arm of the practitioner completely bared; that one should be used which suits his own convenience best—the right I have most frequently employed in ordinary cases of turning, where the hand must really be introduced into the interior of the uterus; this I have found very convenient for all steps of

the process, but it is merely a question of convenience, and may be left to the will of the operator.

In introducing the hand, which should only be attempted in the intervals between the pains, the fingers should be brought into the form of a cone, and gradually, by a screw-like movement, be passed into the vagina, straightening the hand as the knuckles pass the external orifice, as this is usually the most painful part of the proceeding, and the projecting knuckles increase the difficulty and suffering. This done, the tips of the fingers must very cautiously and gently pass the os uteri; the hand, slowly feeling its way and adapting itself to the curve of the passages, must, by a sort of semi-rotatory backward and forward movement, be gradually pressed onwards into the uterine cavity; the proceedings should be stopped during uterine action. More care and time will of course be requisite where the os is not fully dilated, but under any circumstances too great care cannot be exercised. Some assistance will be rendered by either the nurse supporting and gently pressing down the fundus and anterior part of the uterus, or by the operator placing one hand in that situation.

Probably the first great difficulty we shall meet with, especially in cases of arm or shoulder presentation, will be at the brim of the pelvis. Sometimes we may avoid this by passing one or two fingers into the uterus, and pushing the head away towards one or other iliac fossa; or we may adopt the practice of Levret, viz., grasp the shoulder or chest, and, as it were, lift the child out of the pelvic brim and push it aside a little, aiding this movement at the same time by external manipulation with the other hand.

When the brim is passed, if the membranes are entire, every possible care should be taken to prevent their rupturing, and the hand, with the fingers expanded and flattened, should be gradually and carefully insinuated between them and the uterine wall, pressing onwards until near the place where the feet may be expected; then one or two fingers may be pressed into the cavity of the amnion, the membranes being in this way ruptured, or they may be picked through with the thumb and fore-

finger nail; no water will escape, as the os and vagina will be closely filled with the arm of the operator; the hand must then be inserted through the rent into the amniotic cavity, and search be made for the feet; there will be no difficulty in moving the hand freely in any direction. Here, as at other times during the operation, the occurrence of uterine action requires that all proceedings should be stopped for the time.

In introducing the hand we should feel for the anterior surface of the child, as not only is the passage of the arm easier in that direction, but the facility for finding the knee or foot is also greater, as they are sure to be in this situation. When the arm presents, of course this will guide us to the chest and abdomen; the palm of the presenting hand usually looks in the same direction as the anterior surface of the child.

Fig. 32.

Fig. 32 shows the manner of bringing down the feet in version.

When once the foot or knee is seized by passing the forefinger round its popliteal aspect, the child will be very easily turned, and the arm of the operator at the same time should be slowly and cautiously withdrawn, bringing down the leg or legs of the child. Care must also be taken to bring the feet over the abdomen, and not over the back of the child. As the feet descend toward the os uteri, the presenting part, particularly if the arm has been prolapsed into the vagina, begins to recede, the hand externally will assist in moving the child round, and we should perform this step of the operation so gradually as to be assured that the presenting part has quitted the pelvis before the feet have entered. Without attention to this point, the child may easily be fixed across the upper part of the pelvis, or even the body brought down, while the head is wedged into the iliac fossa, and produce a serious obstacle to its further advance.

As soon as the feet are fairly born, in dorso posterior positions, slight attempts must be made to turn the child gently, so that the head may enter with its long diameter transversely, with the occiput to the front, and the case then is virtually an ordinary breech presentation and terminates as such.

Spontaneous Version.—Spontaneous version is nothing more than a change of presentation, by which the head or pelvic extremity replaces the shoulder, which gradually leaves the superior strait.

It is not, therefore, a delivery by the shoulders, but by the head or pelvic extremity; a very different thing from *spontaneous evolution.*

This spontaneous version may occur, whatever the period and dimensions of the fœtus, but it can only take place while the membranes are intact, and the fœtus enjoys great mobility. It will also be seen, from these circumstances, that the delivery for the mother and child will be as favorable as if it had occurred in the presentation which replaced the shoulder.

Although M. Velpeau had occasion to observe a case of spontaneous version after the rupture of the membranes, it is, nevertheless, certain that this change of presentation is scarcely

possible after the escape of the waters; and that, when the fœtus is expelled spontaneously in this case, it is only by the mechanism of *spontaneous evolution.*

Spontaneous version almost always takes place without the knowledge of the accoucheur; also, we but imperfectly understand its mechanism and causes.

Spontaneous Evolution.—The spontaneous evolution or expulsion of the fœtus in presentation of the shoulder, is much better understood than spontaneous version, it is accomplished nearly by the same laws as all the other mechanism of spontaneous expulsion, and this regularity in the expulsion is the more perfect as the fœtus approaches more nearly the dimensions at term. Thus, we have the analogue of the first period of flexion, also descent, rotation, and extension, and, finally, even external rotation. But this mechanism is the more difficult and the more dangerous for both mother and child, as the size of the latter is more considerable.

Fig. 33.

Fig. 33 shows spontaneous evolution, first stage.

In order to describe this mechanism, I will suppose a presentation of the right shoulder, *first anterior dorsal position.*

Immediately after the rupture of the membranes, the parts diminish in size by the compression they undergo. The first period is the analogue of flexion in the presentation of the vertex, of extention in that of the face, and of the *lessening of the parts* in the presentation of the pelvic extremity. Then the shoulder descends gradually, and, in proportion as it enters the excavation, it executes a movement of rotation, which places the head on the horizontal branch of the left pubes, and thence under the pubic arch. After this movement, the arm disengages, and passes out of the vulva; sometimes the expulsion of the arm takes place before this period. When the rotation is performed, the period of the descent of the trunk is complete; the side of the fœtus is pushed into the excavation by gliding on the right sacro-iliac symphisis, while the shoulder remains immovable. After the side, the pelvic extremity descends, which also persues the same direction. Finally, the breech descends, and there successively pass out at the anterior com-

Fig. 34.

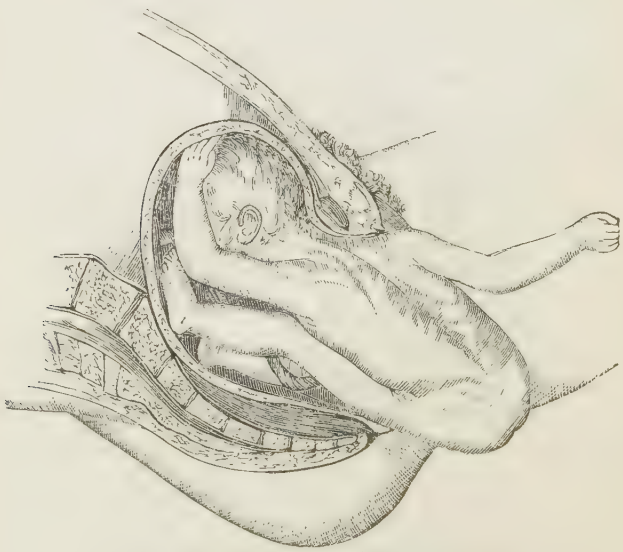


Fig. 34 shows spontaneous evolution, second stage.

missure of the perineum, the lateral and superior portion of the

chest, the side, properly so called, the hip, and pelvic extremity. In proportion as these parts are delivered, the head and left arm enter the excavation, but they are soon expelled; and, in most cases, the head does not undergo its movement of internal rotation. In a word, it presents at parts which have been excessively dilated, and it is not solicited by them to perform this movement of rotation.

Such is the course persued when the dorsal surface of the fœtus corresponds to the front of the pelvis. When the anterior surface of the infant is in relation with the anterior part of the female, the expulsion is exactly the same; but it is also more easy, in this case, to recognize the regularity with which is accomplished the movement of its external rotation, which in every presentation, brings the posterior surface of the fœtus forward. This movement is effected here with perfect regularity; in proportion as the fœtus passes the vulva, a movement of torsion is exercised upon it, which brings the back of the child in front.

In these cases—Clay says: "To attempt *turning*, is injurious and impracticable, except in those cases before the fœtus is engaged in the pelvis. *Evisceration* is easily practicable, but should never be done, unless under circumstances of the most imminent danger from delay. *Wait for natural efforts,* is the axiom of Dr. Douglas; and certainly, if the pelvis will allow of the child to double itself within it, there is every hope of its being expelled by natural efforts. This must not, however, be trusted too far; the child may be larger than anticipated; the pelvic diameters may not be capacious, the pelvis may even be contracted slightly; then, after watching the natural efforts closely, if for some time no advance is observed, I advise *traction.* This mode, I believe, has been too long neglected. I was called to a case some years ago, in consultation with two previous medical attendants. The arm presented; the fœtus was doubled in the pelvis; there was no advance; version was impracticable; rapid exhaustion manifest. I immediately passed a blunt hook over the left scapula, and across the left armpit, and to make traction equal, the index-finger of the right hand was held

against the opposite or right side ribs; with this traction the parts advanced, and in ten minutes, with two or three efforts, the child was delivered, without mutilation or injury to the mother. In another similar case some time after, I applied a pair of forceps. The operator must bear in mind, *first*, to lubricate the perineum well; and, *second*, to keep the traction well in the axis of the pelvis." Failing to deliver by traction, evisceration must of necessity be resorted to.

Plural Pregnancy.—The occurrence of plural pregnancy may in various ways give rise to difficulty, and even to serious obstruction. In the case of multiple pregnancy, the products of conception may be disposed in almost any manner compatible with the limits and mechanical conditions of the uterus; but it does not appear that any great difficulty has been met with, in these instances, unless one or more of the children has been in a faulty position. The same remark applies to twin pregnancy. In the latter, the two children are most frequently observed to occupy each a side of the womb, and in a very considerable number, the head of one child and the breech of the other present; while, in other instances, the feet or head of both may be downwards, or one or both may lie transversely in the womb.

Fig. 35.

Fig. 35 shows the usual position of twins in utero.

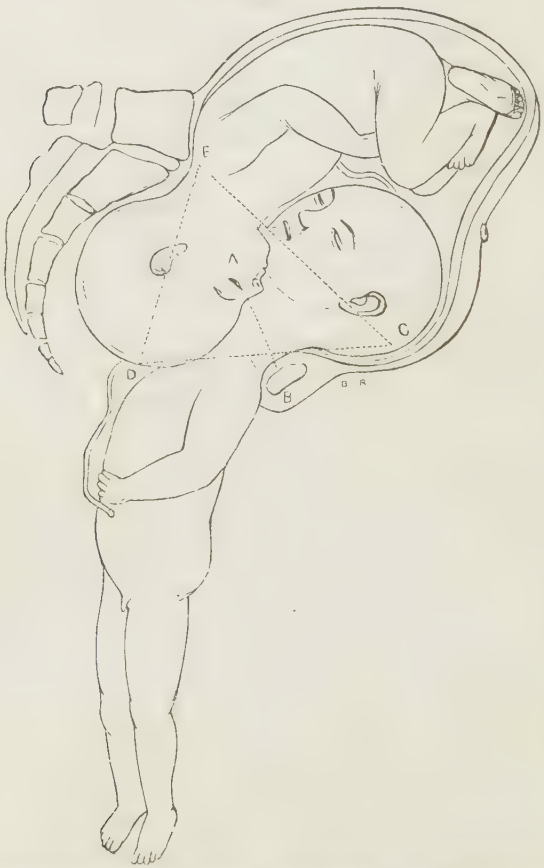
In plural pregnancy the uterus, no doubt, acts at a certain mechanical disadvantage, inasmuch as its propulsive force is communicated to the fœtus which is lowest in the uterus—not directly, as in single pregnancy, but indirectly through the bodies of the others. But, this disadvantage is usually compensated for by the comparatively smaller size of the children. The cases where delay is most likely to occur are those in which the breech of the first child is the presenting part; and, as this descends, the difficulties, as in ordinary cases, will be greatly increased by any unusual resistance at the outlet. And then, after the passage of the breech, the descent and birth of the head—a matter of difficulty, as we have seen, even in presentations of the breech in single pregnancy—is here so much more so that, unless the accoucheur was at hand to afford the assistance of his art, that child, at least, would be almost certainly sacrificed.

There is very often a period of considerable delay after the birth of the first child. This is probably due, in many instances at least, to uterine exhaustion; and the pause which then ensues is a perfectly natural condition, which we should rather encourage, as it enables nature to recruit her exhausted forces, and thus bring them into renewed activity when the period arises for the expulsion of the remaining contents of the uterus. The recommendations, therefore, which are given by some authorities as to the circumstances which warrant, in such cases, operative interference, should be received with great caution, and only acted upon when the conditions are such as to indicate beyond the possibility of doubt that it is proper to aid or precipitate labor in any way.

But the most serious mechanical difficulty which may arise in the course of labor in plural pregnancy, is "locked twins." The most common form of locking is when the first child presents by the breech, and passes downwards up to a certain point without impediment; but when serious obstruction occurs, and we are thus led to make a more particular examination, it is discovered that the descent of the head is obstructed by the presence in the pelvic cavity of the head of the second child,

which has caused the chins to be so hitched together that the

Fig. 36.



HEAD-LOCKED TWINS FORMING A WEDGE WHICH CANNOT PASS THROUGH THE PELVIS.
D apex of wedge. E C base of wedge. A B line of decapitation to destroy wedge, thus permitting head of second child to pass.

completion of the first birth is rendered a matter of impossibility, unless the twins are small or the pelvis large. If, under such circumstances, we pull upon the body of the partially born child, we only make matters worse by locking them more firmly together. In some cases, when the condition of the parts is such as to admit of it, it may be possible, by pressing back the head in the direction of the uterus, to unlock them, and thus to

permit of their descent singly. But, if this endeavor should fail, it will become evident that the only way to disengage them is to break up the compound wedge and so admit of the passage of one or other of the children.

This may be effected in two ways, as has been demonstrated by Dr. Barnes; either by decapitating the first child, which we have the least chance of saving, owing to the pressure which is being exercised on its umbilical cord, or by perforating the head of the second child, so as to admit of the passage of the first. In the first case, the body which occupies the vagina will at once pass, and its head receding will admit of delivery of the second child by the forceps; and in the second, which is only justifiable when we have reason to believe that the other child is dead, we allow the perforated head to be flattened to such an extent as to admit of the passage of the head of the first, through the diameters which the operation has succeeded in reducing.

Fig. 37.

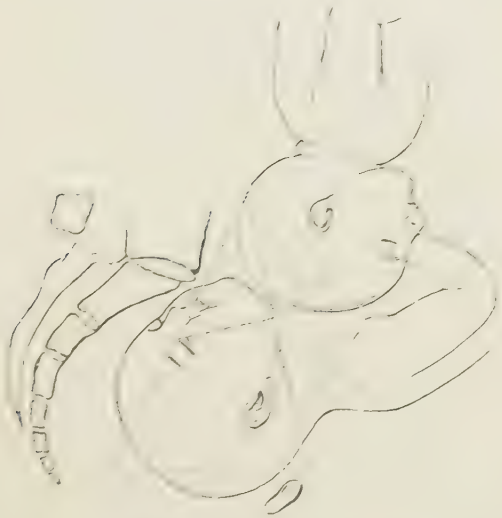


Fig. 37 shows locking of head and thorax.

This latter plan has the obvious advantage over the former that the difficulty of extracting the severed head is thereby avoided.

There is another form of locking, in which both of the twins present by the head. The first head passes in this case without difficulty into the pelvis, but the head of the second, descending along with the trunk of the first, prevents further progress by presenting the bulk of a head and a thorax simultaneously at the brim. The mechanical management of such case as this may be a matter of even greater difficulty than the former. Perforation of the head which is within reach can obviously do no good, so that it is only by guiding the perforator upwards to the second head, and reducing its bulk in the usual way, that the operation may be, with any hope of success, adopted. In such cases, as has been shown by the experience of Dr. Graham Weir and others,, it may be possible by dexterous manipulation to obviate the serious difficulties which exist. It has been found practicable in this way to extract by the forceps the child which originally presented while the head of the other was pushed aside by an assistant. External manipulation has also succeeded in skillful hands in forcing onwards the head which was situated highest in the pelvis, and thus causing it to take precedence of that which originally presented. All cases of locked twins are, however, serious complications, and are therefore with justice looked upon as among those dangers against which the operator should be prepared.

The first or second child may present in a preternatural manner,—by the shoulder, and in such a case, we have to beware of the mistake, which has been committed, of seizing the wrong foot or feet when the hand is introduced for the purpose of turning; or it may happen, as in a case narrated by Madame Lachapelle, that when turning has been successfully effected, and the breech extracted, locking by the chins is the perplexing result. It is to be borne in mind that, in plural pregnancy, there is a greater risk of hemorrhage, owing to the extent of surface to which the placenta is attached. And, in cases in which there is an inosculation of the cords, there is, at an earlier stage, an-

other special risk, if we leave the placental portion of the severed cord untied.

MONSTROSITIES.—Various forms of monstrosity give rise to difficulty in the course of labor, and in extreme cases it is only possible to complete delivery by embryotomy or the Cæsarian Section. We have here, of course, nothing to do with such departments of teratology as are illustrated by acephalic or anencephalic monstors; and still less with those which are anopic or cyclopic, as such conditions present no mechanical obstacle whatever. The many different forms of ectopy present, as a rule, little or no difficulty; but in the more complete form, as in a case figured by Vrolik, the whole of the thoracic and abdominal viscera are external to the child, and may impede its passage. It has been observed, in another form of monstrosity, that the liver projecting through the unclosed umbilicus (*Exomphalos*) has, by its augmented size, caused a serious impediment, which might well be expected to bar the progress of ordinary labor.

The forms of monstrosity which are, from the point of view of mechanical obstruction, the most serious, are those in which the two children in a twin pregnancy become fused together to a greater or less extent, the union or fusion being anatomically symmetrical. Infinite as the varieties of such cases are, this rule is never violated, and is indeed the only possible method of which the laws which regulate development can admit. Thus, we have union of sacrum to sacrum, occiput to occiput, or abdomen to abdomen; but never sacrum to occiput, or abdomen to sacrum. There may be one perfect trunk with two heads, but the union may be higher than the cervical vertebræ, when we have more or less fusion of the crania.

In a case which has been described by Meigs, one head descended first and was delivered. It then became fixed under the subpubic angle, and the ultimate process of delivery was precisely similar to what takes place in the spontaneous evolution of a transverse presentation, the trunk, breech, lower limbs, and, lastly, the second head, passing through the external parts.

In that class of cases in which there is one head and a double condition of the lower parts of the body (*Janiceps*), the difficulty is not likely to be so great, as it is much more conceivable that two pelves could be sufficiently pressed together during their descent as to admit of their simultaneous passage through the pelvis of the mother.

It has occasionally happened that twins, more or less completely united or fused together, have been born alive, and have even attained maturity. In the most familiar instance of this kind—that of the well-known Siamese twins—there was a mere band of union; but it is indeed difficult, in regard to this and other similar cases, to conceive even the possibility of birth, unless after mutilation or separation; in fact, we can only suppose, in reference to such, that the maternal pelvis has been of unusual capacity, that labor has occured prematurely, or that both of these conditions have been combined. So various, however, are the forms under which monstrosities present themselves, that it is impossible to lay down any general rules which might serve for the guidance of the practitioner. In a considerable number of cases, it has been found necessary to decapitate, eviscerate, and otherwise mutilate one or both of the united twins or repeated parts before it has been possible to relieve the woman of the contents of her womb. Care must, it need scarcely be added, be taken, not only to insure correctness of diagnosis, but also not to operate rashly, for there can be no doubt that we are morally bound to consider the life of monsters as scrupulously as that of the fœtus in normal pregnancy.

A rare and curious cause of obstructed labor has been shown by Sir James Simpson to arise from *dorsal displacement of the arm*. This may occur either in pelvic or cephalic presentations. In the former case, which is more frequent, it is probably due, as Barnes shows, to an improper and imprudent dragging upon the limbs, the tendency of which is to allow the arm to pass up alongside of the head. If one or other arm should, in this process, get behind the head, as is still more likely to occur in unskilful turning, it is not difficult to understand how the arm may get behind the neck and beneath

the occiput, and thus constitute an impediment of a very serious character, the limb being so placed that its reposition is a matter of no inconsiderable difficulty. The arm will, in such cases, generally lie against the symphysis pubis, and it will therefore only be practicable to dislodge it, if we can succeed in pushing the parts upwards, so as to leave sufficient room, between the occiput and the upper part of the symphysis, to admit of such manipulation as may effect our object. In Simpson's case, the presentation was one of the head, in which the arm had in some peculiar way, which it is difficult to understand, got on to the nape of the neck, and was transversely across the pelvis. The course suggested by him for the management of such cases is to bring the arm down by the side of the head, as its complete reposition above the brim would probably be impossible, and allow labor to go on in this way, the presentation now being an ordinary head and arm case; but we are impressed with the idea that the mode of procedure adopted by Dr. Jardine Murray in similar circumstances, which simply consisted in turning, meets much more fully the difficulties of the case.

Excessive Size of the Fœtus.—The fœtus rarely acquires such a size as to render delivery impossible, when the pelvis is well formed; most frequently, this excess of volume only retards parturition. However, unusual development of the fœtus has been known to offer an insurmountable obstacle to delivery, even when the pelvis possessed its ordinary dimensions; and this cavity being contracted, the same difficulty would of course obtain to a greater degree. In both cases, this disproportion between the pelvis and fœtus should be overcome by traction made with the forceps; this instrument will alone suffice, if the pelvis and head be well formed.

Hydrocephalus is distinguished into external and internal. The former, consisting of an accumulation of fluid under the scalp and pericranium, never offers any impediment to delivery, and has been termed more especially the *sero-sanguineous tumor*. The latter, a collection of serum within the cranium, which alone should be called *hydrocephalus*, is entitled to particular attention, not only on account of the difficulty it occasions in

parturition, but because it involves the safety of the child after its birth. I shall allude to it merely in connection with its influence on labor.

Diagnosis.—At the time of labor, hydrocephalus is distinguished by the following circumstances: the head forms a large tumor, which occupies the entire contour of the superior strait, without descending. This tumor is resisting during a contraction; soft and fluctuating in the intervals of the pain, particularly at the points corresponding with the sutures and fontanelles, which are more or less open; the bones themselves are likewise, in a greater or less degree, separated! Finally, in cases of very marked hydrocephalus, the bones float, as it were, in the midst of the soft parts.

When hydrocephalus is slight, and even in cases where the cranium contains a considerable quantity of fluid, spontaneous delivery may be accomplished. The head, being extremely soft, elongates, and adapts itself to the cavity of the pelvis, and finally is expelled. But most frequently the accoucheur is obliged to aid the expulsion by the application of the forceps. Sometimes even this instrument proves unavailing; and it then becomes necessary to puncture the tumor. Under these circumstances, great care should be had not to involve the brain, but merely evacuate the serum; for, although the life of the child will almost always be compromised by this puncture, yet infants have sometimes survived the operation. The puncture should be made with a trocar or a pointed bistoury enveloped in a piece of linen, except the extremity of the blade.

Ascites and Hydrothorax.—After the delivery of the head, the labor may be obstructed by the thorax and abdomen, if they be the seat of an effusion. Hydrothorax will be recognized by the separation of the intercostal spaces, and the fluctuation perceived by the finger at these points. This fluctuation, together with the enlargement of the abdomen, characterizes ascites.

Nature may, indeed, overcome these obstacles; however, art is most frequently obliged to interfere. The accoucheur

should make tractions on the head, and, if these be sufficient, he should puncture the thorax or abdomen.

Excess of Liquor Amnii.—The extreme distension of the uterus, whether it be occasioned by the presence of several fœtuses, or by an excessive accumulation of fluid, may also induce debility—a suspension or complete cessation of the pains. In fact, in ordinary cases, the ovum is not entirely filled with amniotic fluid, and the uterus is not distended; thus, before the rupture of the membranes, it can press upon the fœtus, and cause a portion of it to descend into the orifice. When, on the contrary, this organ has been forced to distend itself beyond its ordinary limits in consequence of the abnormal increase of the ovum, it loses, in part, its contractile property. This difficulty may be remedied by rupturing the membranes, thus affording escape to a portion of the liquor amnii. The uterus then finds itself in a natural condition, and its organic contractility is then freely exercised.

Toughness of the membranes.—The membranes are occasionally so thick and resisting that the energetic and continued contractions of the womb cannot rupture them, although the dilatation may have been complete for some time, and the membranous sac project into the vagina. If the accoucheur does not interfere in this case, the rupture of the sac may be delayed for a considerable period; sometimes even the contractions will be altogether insufficient to produce it. The uterus then falls into a state of inertia, and it becomes necessary to rupture the sac artificially.

After having ascertained that the dilatation is complete, that the presentation is favorable, and that there is no other mechanical obstacle than the resistance of the membranes, it becomes the duty of the accoucheur to rupture them. For this purpose, he should select the moment of a strong contraction; and while the sac is projected forward, he should push against it the extremity of the index finger; this will frequently suffice; but it sometimes becomes necessary to lacerate the membranes with the finger nail, in order to weaken them.

Retention of the Placenta.—This may be due to three different causes, viz: 1. Torpor of the uterus. 2. Irregular contraction. 3. Morbid adhesion of the placenta to the uterus. The symptoms of the first have already been mentioned. In the second case there is a spasmodic or "hour-glass" contraction of some of the circular fibres, either of the os uteri internum (which is the most frequent), or of the body or fundus of the uterus. The cord may be traced passing through the constriction. In the third case, the existence of adhesion can only be made out when the hand is introduced into the uterus, in order to detach the placenta. In all these cases there will be much hemorrhage, if any portion of the placenta be detached.

The name, "hour-glass contraction" has been given to irregular contraction of the uterus, because that organ appears to be divided into two chambers, by the circular construction of its fibres. The whole or only a portion of the placenta may be retained in the upper chamber. Irregular and spasmodic contraction of the uterus is very likely to ensue if the cord be dragged when the placenta is adherent.

In most of these cases, and especially when the placenta is morbidly adherent, the introduction of the hand into the uterus is the only measure which will suffice.

When the hand is introduced into the uterus, the fingers are placed in a conical form, and gradually insinuated into the vagina. If there is hour-glass contraction, the cord serves as a guide along which the tips of the fingers are to be passed, until they reach the constriction. The tips of the fingers are then inserted into the stricture, and the fingers gradually and steadily expanded until they overcome the resistance of the circular uterine fibres. The hand can then be passed on into the uterine cavity, so as to remove the placenta. If the placenta is morbidly adherent, any detached portion of it should be seized, and the remainder gradually and cautiously separated or peeled off by the fingers from the uterus until the whole can be removed. Whilst this is being done with one hand, the other hand should be placed external on the abdomen, in order to grasp and steady the fundus uteri. These operations require much tact and deli-

cacy. The introduction of the hand into the uterus is a measure always attended with some risk, but the operation becomes doubly hazardous when the placenta is morbidly adherent. There is then danger of injuring the uterus, as well as of leaving portions of adherent placenta behind. Should any portions of the placenta be left behind, they will be likely to decompose, and occasion much irritation. To obviate these effects, the vagina should be syringed daily with a weak solution of permanganate of potash, say one scruple to a pint of water.

Prolapsus of the Funis.—When there is a prolapse of the umbilical cord during labor, before the membranes rupture, there may be felt through them a small, soft, movable body, which can be readily displaced, and has a rapid pulsation, isochronous with the fœtal heart. After the membranes have ruptured, the diagnosis is very easy; for the cord can readily be felt in the vagina. Sometimes it is prolapsed beyond the os externum.

A prolapse of the funis does not make any difference in the course of a labor as regards the mother; but it is a complication fraught with the utmost danger to the child. If a prolapsed cord cannot be reduced, the child will almost inevitably die before the termination of the labor, from pressure on the umbilical vessels. There are several causes which may produce this accident, such as unfavorable presentations, irregularity in the shape of the pelvis, sudden escape of a large quantity of liquor amnii, excessive length of cord, low insertion of the cord into the placenta, or attachment of the placenta to the neck of the uterus, etc.

When the cord can be felt distinctly pulsating, some interference is necessary to save the life of the child, provided that the os uteri is sufficiently dilated to allow it. Various means have been devised for reducing the cord and keeping it up out of the way, until the presenting part has descended and fully occupied the pelvic cavity. One of the best of these is the postural method. In this position, on the knees and breast, the cord naturally gravitates towards the fundus uteri. A repositor may be made from a piece of whalebone or flexible wood an eighth of an inch thick, half an inch wide, and twenty inches

long; the corners should be chamfered off, and two holes made in the one end, through which a piece of tape enclosing the cord, may be passed, the ends of the tape are brought down and held with the other end of the stick, and the looped end is gently pushed up beside the head. After the head engages in the pelvis, one end of the tape is released and the other is pulled on until it comes away, after which the stick is withdrawn. If these devices fail, turning will be necessary. If the labor be too far advanced for turning, the forceps may be used.

When the cord is cold and pulseless, the child is dead; there is, therefore, no necessity for interference.

CHAPTER IV.

STRUCTURAL DYSTOCIA.

Structural dystocia, dependent on deformities or disease of the mother, may be owing to faulty conditions of the soft or bony structures. We shall first consider that which is dependent on abnormal states of the soft parts.

Pelvic Tumors.—Various tumors have been observed in the pelvic excavation, and on more than one occasion great difficulty has arisen from them in regard to the birth of the child.

They are pretty frequently found to occur in the perineum, or in the recto-vaginal septum. Being variable as to size, consistence, nature, etc., they are far from always requiring the same kind of treatment; when not very large or capable of being flattened by pressure, if other circumstances are favorable, they do not always prevent the spontaneous delivery of the child.

Cysts of the ovaries or tubes, frequently lodging in the recto-vaginal pouch, may besides produce displacements of the womb, as MM. Voisin and Noble of Versailles were the first to prove. The two observations, derived by these authors from Montaulier and Laporte, added to the three furnished them by Dupuytren, show that the uterus was pushed down in the opposite direction to the tumor, and that it became necessary to puncture the cyst if it should become very large. In a case mentioned by Jackson, it was necessary to puncture it, and six pints of fluid was discharged, and the delivery took place by the feet. Burns gives another, which completely filled the pelvis, and which was extirpated successfully by a careful dissection. Denman speaks of one which rendered the labor altogether impossible, while in another case a simple puncture caused the easy expulsion of the fœtus. These cysts are far from being uncommon. Watson met with two, Jarritt two, Coley one; and Parke and Merriman have made them the subject of two very interesting memoirs. Burns, who has studied them

with care, maintains that they should be pushed up if they continue movable, that they should be punctured if they contain fluid, that they should be extirpated when adherent, and that, in cases when these means are not applicable, craniotomy or the Cæsarian section may be resorted to.

Scirrhous or fibrous masses connected with the ovary, when sufficiently movable to sink down and lodge betwixt the uterus and sides of the pelvis; they require to be displaced and carried above the superior strait; for this purpose, the woman must be placed upon her knees and elbows, in such a way that the pelvis may be higher than the breast, and all the muscles in a state of relaxation; then, by means of the hand or fingers, we attempt to push the tumor out of the passage; finally, when all attempts at reduction have proved to be fruitless, it may become indispensably necessary to extract the tumor by making incisions through the vagina or rectum, or even to have recourse to the Cæsarian operation.

Urinary Calculi.—It is evident that a large stone might, during labor, become situated directly behind the pubis, so as to shorten the antero-posterior diameter of the pelvis. A stone, being violently pressed from above downwards by the child's head, would almost necessarily give rise to contusion or laceration of the bladder or of the recto-vaginal septum, as well as the pain that would ensue thereupon. It would be easy, at the commencement of labor, to push the stone upwards, and retain it above the symphysis pubis, until the head could get below it. Should the practitioner arrive late, and find the stone coming down before the head, he should, notwithstanding, endeavor to raise it above the strait.

Anomalies of the Vagina.—The *labia* or *nymphæ* may have become agglutinated subsequently to the fecundation, and either wholly or partially close up the vagina. The hymen may be hard, fibrous, or cartilaginous, so as to leave but a small orifice, and thus interfere with the escape of the child. Delivery is not in such cases impossible: such feeble barriers are incapable of counterbalancing the energetic contractions of the uterus; but it is better to divide with an instrument those parts that have to

be separated than to expose the woman to the risk of ruptures and irregular lacerations whose limits cannot be prescribed, and which might go to a dangerous extent.

When the *atresia* is complete, and has occured soon after conception, it is prudent to make an opening as soon as the head presses on the floor of the pelvis. Otherwise, the anus, the recto-vaginal septum, and the uterus itself may be torn, and lead to grave consequences. In such a case, the incision should be made between the meatus urinarius and the anus, so as to touch neither the rectum or the urethra, in the manner described on pages 173-4.

Vaginal Cystocele.—Fortunately such cases are very rare, for their consequences may be very serious.

The patient will complain of fulness, tension, a feeling of pressing down and dragging, with a desire to evacuate urine frequently, and of inability to do so. On examination we detect a tumor in front of the pelvis, partially covering the head, and containing fluid. The finger passes easily posterior to the tumor, but not anteriorly, and the catheter cannot be passed in the usual direction, indicating clearly its nature. With care, there is not much danger of an incorrect diagnosis, but if not on our guard we may mistake it.

Treatment.—A male elastic catheter must be introduced, with the point directed downwards and backwards, and if the head has not descended too low, we shall probably be successful in emptying the bladder. The head may also be raised a little with the finger during an interval, to facilitate the introduction. Even if we succeed, it will be necessary to watch carefully against the effects of the previous pressure; but if we fail, and either the labor be arrested by the obstacle, or the pressure threaten a rupture, our only resource, I believe, is to tap the bladder with a very fine trocar, through the vagina.

Collection of fæces in the rectum.—This is not a very uncommon cause of delay towards the end of labor, nor is such an accumulation inconsistent with frequent and fluid, but small, evacuations daily. It is easily detected; the tumor is felt in the situation of the rectum, and its irregular form and want of

elasticity would almost be sufficient to indicate its nature. It is possible, however, to press it downwards, and then the escape of fæces will put the question beyond doubt.

If proper care have been taken during pregnancy, and the first stage of labor, we shall never be troubled by this obstacle; but if not, we must remedy the neglect by enemata of warm water whenever we detect the state of the intestine; and if, as in some rare cases, this be not sufficient, the fæces must be removed by a spatula or scoop.

Rupture of the Uterus.—The symptoms of this alarming accident are, sudden and acute pain in the abdomen, followed by a ghastly pallor of the countenance, weak thready pulse, syncope, constant vomiting of dark, grumous fluid, resembling coffee-grounds, and other signs of extreme prostration. There is usually a discharge of blood from the vagina. The presentation recedes out of reach, and, if the rent in the uterus be large, the child escapes through it into the abdominal cavity, where its limbs may be very distinctly felt through the parieties. In these cases, an endeavor may be made to keep up the powers of life by stimuli; but death nearly always takes place after a few hours.

Rupture of the uterus is the most dangerous complication of labor to which women are liable: it is fortunately rare, occurring about once in 1331 cases. It may be occasioned by malpresentation, deformity of the pelvis, the abuse of ergot, awkward attemps to turn or to use instruments, structural degenerations of the uterus, etc. In some instances, the rupture may not extend through the entire thickness of the uterine parietes. When it is of this partial character, it is attended with less imminent danger.

The vagina may be lacerated during labor at its junction with the uterus. The symptoms produced resemble those of ruptured uterus, but they are not so urgent, nor are they attended with so much danger.

When the uterus is ruptured, delivery should be accomplished as soon as possible by turning, by the forceps, or by craniotomy.

If the child has escaped into the abdominal cavity, the hand must be passed through the rent in the uterus in order to search for the feet. The fœtus should be delivered by gastrotomy, when delivery *per vias naturales* has been found impossible.

If the woman survive the immediate shock of the rupture, she will be likely to be carried off subsequently by peritonitis. Should peritonitis supervene, it must be treated in the usual way.

Inversion of the Uterus.—This dangerous accident is somewhat rare. It usually happens very soon after the birth of the child. It may occur spontaneously, but much more frequently is the result of improper traction upon the cord when the placenta is still attached. The inversion may be partial, and limited to the fundus; or the uterus may be turned completely inside out, and pass boyond the os externum, where it presents as a globular elastic tumor, with a bright-red, rough, bleeding surface. As the uterus descends, the woman experiences a sensation as if a second child were coming into the world, and is immediately afterwards attacked with vomiting, syncope, and alarming prostration, accompanied, not unfrequently, with profuse hemorrhage.

In complete inversion the uterus descends through the os uteri, until the whole organ becomes external to the vulva. The inverted organ then contains a cavity communicating with the abdomen, and lined by peritoneum. Within the cavity are the uterine appendages, and occasionally the intestines. In partial inversion, the fundus may be merely depressed into the cavity of the uterus like the bottom of a glass bottle; or the greater portion of the uterus may be depressed, and form a tumor within the vagina, but not external. When the inversion is complete, no uterine tumor whatever can be felt in the hypogastric region; when it is partial, the depression of the fundus can often be felt through the parietes.

Inversion of the uterus is always attended with much peril. If the displacement be not speedily reduced, the woman will in all probability die from the immediate shock of the accident,

or from hemorrhage, inflammation, gangrene of the uterus, etc.

Inversion in some instances takes place spontaneously, in consequence of the woman making a sudden bearing-down effort immediately after the birth of the child.

When the uterus is inverted an immediate attempt should be made to replace it. Accordingly, compress the tumor firmly with both hands, and then push the fundus upwards into the pelvis, in the direction of the vaginal canal, by means of the fingers placed in the form of a cone. Should the placenta adhere to the uterus, it ought to be returned with it; but should it be impossible to do so, it may be separated. After the uterus is returned, the hand should be kept in its cavity until it is expelled, with the placenta, by the uterine contraction. Should the first attempt at reduction fail, you may try again, after emptying the bladder and rectum. The inverted organ may, especially if there is much hemorrhage, be bathed in ice-cold water, which will assist very materially in the reduction, and at the same time arrest the bleeding.

If the uterus has been inverted for four or five hours, the reduction becomes exceedingly difficult, on account of the strangulation and consequent swelling of the inverted organ.

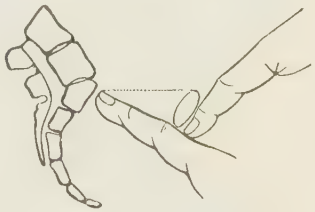
Pelvic Deformity.—When labor is obstructed in the second stage by pelvic deformity. The head is arrested in its progress at some particular part of the pelvis (generally the brim,) and remains immovable, notwithstanding there may have been strong forcing pains for some hours. The scalp becomes very tumid, and the bones overlap very much, so as to give the vertex a conical shape.

Deformities of the pelvis are occasioned by rickets during childhood, mollities ossium in adult age, bony growths, fractures, etc. The deformity may affect the brim, cavity, or outlet of the pelvis. The brim is most usually affected, and the most ordinary kind of deformity is a prominent sacrum, causing a diminution of the antero-posterior diameter of the brim. The pelvis in such cases becomes heart-shaped.

The degree of deformity may vary very much, but it is most readily estimated by measuring the antero-posterior diameter of the brim. This may be done by introducing the tips of four fingers of one hand in a line, between the sacral promontory and pubis. If they cannot be separated, for instance, there is much deformity; but if they can be separated widely, there is little or none. Again, if the forefinger, during an ordinary examination, impinges on the upper part of the sacrum, we have reason to believe that the deformity is considerable.

Fig. 38.

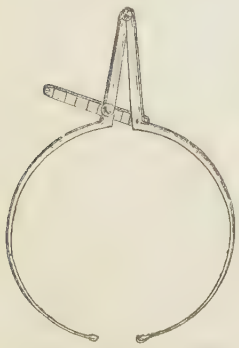
Fig. 39.



Figures 38 and 39 show the method of ascertaining the degrees of deformity.

The existence of pelvic deformity may also be ascertained by the great difficulty which is experienced in passing up the forefinger between the head and the different parts of the pelvis. Various instruments have been invented for the measuring of the pelvis, among the best, is the *compas d'epaisseur* or *callipers* of Baudelocque, which is formed like a pair of compasses—with blunt extremities—the branches of which can be moved at will. One of these is applied on the symphisis pubis, and the other on the sacrum. About three inches must be deducted from this measurement for the thickness of the mons veneris, pubis, and the base of the sacrum. Distortions of the cavity and outlet of the pelvis are not so common; they generally depend on unnatural straightness of the sacrum, approximation of the tubera ischii, narrowing of the pubic arch, or anchylosis of the coccyx, etc. They produce much the same

Fig. 40.

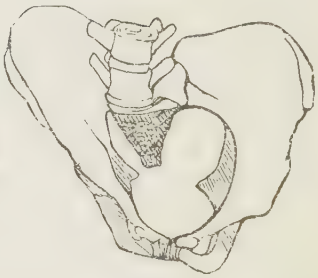


BAUDELOCQUE'S PELVIMETER.

symptoms as distortions of the brim, except that they arise at a later period of the labor.

Fig. 41.

Fig. 42.



FIGURES 41 and 42 SHOW THE MOST FREQUENT FORMS OF PELVIC DEFORMITY.

Fig. 41 shows deformity in the antero-posterior diameter.
Fig. 42 shows oblique deformity, often the result of hip-disease.

The symptoms occasioned by deformity of the brim have been very accurately described by Dr. Rigby. "Besides the general appearance of the patient," he says, "we frequently find that the uterine contractions are very irregular; that they have but little effect in dilating the os uteri: the head does not descend against it, but remains high up; it shows no disposition to enter the pelvic cavity, and rests upon the symphysis pubis, against which it presses very forcibly, being pushed forwards by the promontory of the sacrum." When the deformity is not very considerable, it often happens that after some hours of severe pain, the difficulty is suddenly overcome, the head passes, and the rest of the labor is speedily accomplished.

When, however, the deformity is more considerable, the forceps is likely to be required; when it is still greater, the accoucheur is reduced to the painful necessity of destroying the child by craniotomy. Again, where the distortion is extreme, delivery *per vias naturales* becomes impossible. The Cæsarean section is then the last resource of art.

The forceps is inadmissible when the antero-posterior diameter of the pelvis is less than three inches; because it has

been laid down as a rule, that a living child cannot pass through a pelvis of such dimensions. Craniotomy, or the cephalotribe, may be employed when the antero-posterior diameter is not more than two and a half inches, nor less than an inch and a half. When it is less than an inch and a half, delivery *per vias naturales* is scarcely possible.

Impaction of the head, which generally results in these cases, is always attended with considerable danger. The constant and severe pressure upon the soft parts lining the pelvis, will almost certainly produce inflammation and sloughing of those parts. Hence, there is a necessity for prompt interference.

CHAPTER V.

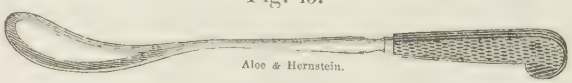
OBSTETRIC INSTRUMENTS AND OPERATIONS.

There are two leading divisions into which all obstetric operations may be divided; under the first head are arranged those which aim at preserving the lives of both mother and child; under the second head, those wherein the life of the child is necessarily sacrificed in order to save that of the mother. The former includes the use of the Vectis, the Forceps, the Cæsarean section, Gastro Elytrotomy, the Sigaultean operation, and the Induction of premature labor; the latter, Embryotomy, Cephalotripsy, etc., where mutilation of the fœtus is accomplished.

The Vectis is an instrument similar in construction to a blade of the long, straight, obstetric forceps. It is now chiefly used as a *tractor;* though formerly it was made to act as a lever of the first kind, but the danger from pressure on the soft parts is so great as quite to disqualify it for any such employment.

The cases in which it may be safely used are generally those where the short forceps might be employed, as where

Fig. 43.



THE VECTIS.

the head remains impacted either within the cavity or at the outlet, or where the expelling powers are feeble or faulty. It can be readily applied in almost any direction where it works best. There are many cases, however, in which the vectis is utterly useless, and where we find the forceps perfectly successful; there is also less chance of injury from the latter than from the former when properly employed. On the whole, then, it may be said that though the employment of the vectis is very facile, its power is very feeble.

The circumstances in which the *vectis* may be safely and usefully employed are the following:

1. Cases of face-presentation with impaction.

2. Cases where the brow presents, and where, by bringing down the vertex with the vectis, a face-presentation is prevented.

3. Cases where the side of the head presents.

The vectis should never be used except where there is ample room; where there is a fully dilated or easily dilatable os; where there is some uterine action, and where one or other of the above indications for its employment exists.

The introduction of the vectis is very much the same in operation as that of the forceps, except that the instrument being single it may be applied just in that position where the force is required to be exerted. The patient and operator should occupy the usual forceps positions, the former being on her back, with the legs well drawn up, and with the nates near to the edge of the bed, the operator facing the pelvic outlet. The instrument being well warmed and greased, two fingers of the left hand should be placed in the vagina to guide the application of the instrument to the head, over which, by the same kind of movement as is employed in the use of the forceps, the curve of the blade will be directed.

Supposing that the head presents in the first position, and is wedged in the cavity of the pelvis, the occiput lying against the left foramen ovale, the instrument should be passed up in that direction, great care being taken in this as in all cases where an instrument is being passed within the cervix uteri, to avoid injury to that part, and especially to avoid pushing it on the outside of the cervix in the vaginal cul-de-sac.

In the case above referred to, the two forefingers of the right hand should serve as a guide, while the instrument is passed with the left; as soon as it is in the position we wish, the fingers of the right hand will serve the double duty of a fulcrum and as an aid in the process of extraction. We ought never to make a fulcrum of the maternal structures.

Of course, attention to co-operate with the pains will be observed in the use of the vectis as in the case of the forceps; and, if necessary, the instrument may be successively applied to different parts of the head and face, according to the position and character of the impaction; now its power as a lever, again as a tractor, being brought into play. If possible, greater caution is required in dealing with this instrument than with the forceps, as the danger both to the mother and child, in the hands of the careless and ignorant, is greater in the use of the former than of the latter.

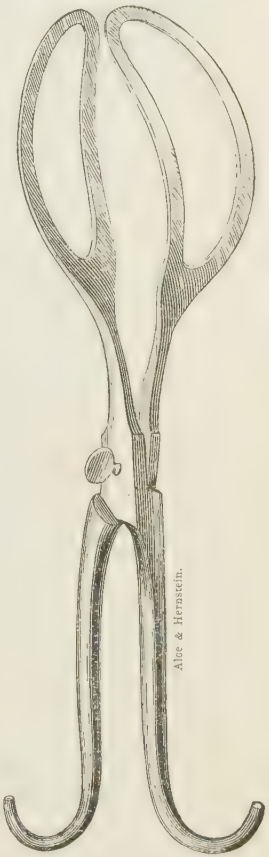
The Fillet or Loop.—This now almost obsolete instrument was once in frequent use before the value of a far more valuable instrument (the forceps) was properly estimated. It is difficult of application, and when applied, its traction is not in accordance with the axes of the pelvis, is apt to injure the fœtus, and if ineffectual, difficult to be withdrawn. Two or three attempts have been made to improve, and introduce it into practice again. Dr. Evans of Chicago has contrived a network, applied by two steel rods, inclosing the head as in a bag, similar to applying a ligature round a polypus; this instrument is ingenious, but its utility is yet very doubtful. It is lamentable that men should lose their time by attempting to improve so worthless an instrument, and one which is now so effectually superseded by the forceps.

The Forceps.—That the invention of the forceps has lessened the amount of human suffering and reduced the mortality of both child and mother, in obstetric practice, cannot for one moment admit of a doubt. Very many cases that in former days ended in craniotomy, are now terminated by the forceps with safety, both to mother and offspring; to which we may add another improvement—shortening the time for delaying the delivery, which formerly was alone often the cause of death. I look, therefore, on the introduction of the forceps as one of the greatest boons to suffering humanity; still they must not be considered as entirely void of danger; neither must it be forgotten that they have been, and are sometimes, liable to abuse. If the rule, however, be borne in mind, never to use operative

instruments of importance, to save the time of the attendant or to exhibit mechanical skill, but to use them only when they are truly and legitimately called for, then, and then only, will instrumental aid be placed in its proper position.

The forceps may best be described as a pair of artificial hands, by which the fœtal head may be grasped and drawn through the maternal passages by a *vis a fronte*, when the *vis a tergo* is deficient. This description will impress on the mind the important action of the instrument as a tractor, to which all its other powers are subservient. The forceps consist of two separate blades of a curved form, adapted to fit the child's head; a lock by which the blades are united after introduction; and handles which are grasped by the operator, and by means of which traction is made. It would be a wearisome and unsatisfactory task to dwell on all the modifications of the instrument which have been made, which are so numerous as to make it almost appear as if no one could practise midwifery with the least pretension to eminence, unless he has attached his name to a new variety of forceps.

Fig. 44.



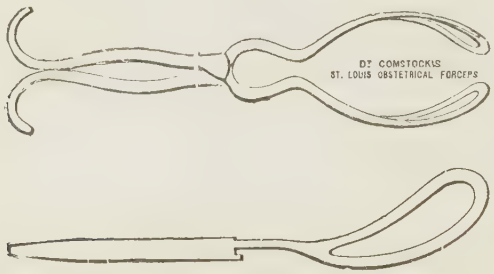
HODGE'S FORCEPS.

The forceps, originally introduced by Chamberlain, an English accoucheur, was at first straight, and could only be used after the head had descended into the pelvic excavation. Since the time of Chamberlain, Levret, Smellie and others have suggested important modifications in this instrument; the most valuable of which is that which enables us to employ it when the head is at the superior strait. With this view, the borders of the instrument have been curved, the upper border being concave, while

the lower is convex. This curve, or concavity, should begin at the pivot. Thus arranged, the forceps accommodates itself to the two axes of the pelvic canal, and may be carried to the womb for the purpose of reaching the head. Each branch is composed of a blade, concave internally, and hollowed in its centre; and of a handle, by means of which the accoucheur introduces the blade. These two branches are in every respect similar, except at their middle portion, where they articulate; the one has a pivot, and the other a mortise. These serve as a means of union after the branches have been introduced. The extremity of the handle of each branch is curved in the form of a hook, in order to afford a firm hold to the hand of the accoucheur. This also enables us to employ one of the branches as a blunt hook.

The best long forceps in use at the present day are Comstock's or Hodge's, other varieties, however, possess good qual-

Fig. 45.



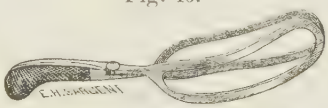
ities, and among the many excellent ones in use, is that invented by Dr. C. H. B. Kellogg, formerly professor of obstetrics in the Detroit Homœopathic School.

The only variety of short forceps that is of any utility, is the "*pocket forceps*," invented by Prof. E. M. Hale, who says: "its small size enables the physician to carry it in his pocket. Its appearance is not in the least formidable. It can readily be applied in nearly all the various positions in which women place themselves during labor, and thus affords with but the slightest show of an operation, very important assistance during the last stage.

It can be used to rectify those annoying *oblique* positions of the head, which, even when the head is resting on the perineum, retards its progress. Here it is used as a *lateral lever*, as recommended by Meigs. In cases where the head is placed *transversely* to the lower pelvic strait, it can be used successfully to *rotate* the occiput under the pubic arch. In face-presentations, these forceps can be used effectually to cause the chin to escape more readily from under the pubes, or assist it in escaping from the perineum.

In *occipito-posterior* positions this little instrument will greatly assist in causing the *chin to approach the breast*, and allow the vertex to escape more readily. Even in that most natural phase of labor, the *occipito-anterior*, the attendant and patient are annoyed and fatigued by the *tendency of the head to retrogade*, or "slip back," at each pain, just at the time when it seems as if it was about to escape from the vulva, or reach a position where it could be grasped by the hand. How often have we waited hours for the escape of the head under these circumstances. We feel that all that is wanting is a *little harder pain*. We know that if we only had one hand on the head we could extract it, but just as we seem able to grasp it, it slides back into the pelvis. It is in just such cases, that these small forceps are a great assistance to both physician and patient.

Fig. 46.



HALE'S POCKET FORCEPS.

As a *vectis*, one blade of the forceps can be used to advantage to *rectify malpositions*, or assist in the *advancement of the head*. The flexibility of the blade renders it incapable of injuring the soft parts, or the child, while it enables it to be used with sufficient force in a majority of cases."

The following rules have been collated from the best authorities; and they seem to embody, in a succinct form, all the important points in reference to the employment of the forceps.

The following should be our object in resorting to the instruments:

1. To supply the want of uterine power in effecting the delivery of the child.

2. To hasten the delivery where there exist dangerous symptoms to the mother, either from too protracted labor, or from convulsions, hemorrhage, exhaustion, or from too great a resistance of the perineal tissues.

3. To aid in the delivery where there exists a malposition of the fœtus, either at the superior strait, or in the excavation.

4. To assist the delivery where there exists a slight deficiency of space at the superior or inferior strait of the pelvis. By acting judiciously in these cases, we may avoid the use of the perforator.

The application of the forceps is inadmissible where the os uteri and the other soft parts remain rigid and undilatable; and where there is a great disproportion between the head and the pelvis.

In the application of the forceps we should be guided by the following rules:

1. Previous to applying the instruments, the woman should, whenever possible, be apprised of the nature and the object of the operation; and the consent of herself and husband should be obtained.

2. The patient should be placed across the bed upon her back, with the nates made to project somewhat over the edge of the bed, and the feet should be supported by two chairs at a convenient distance; the legs being separated, the knees bent, and the bladder and rectum should be emptied of their contents, if necessary.

3. The condition of the soft parts, and at the same time the exact position of the presenting part, should always be ascertained.

4. The instruments should be washed in warm water, with the double object of insuring their cleanliness and of bringing them to a temperature congenial to the woman. At the same

time, the external portion of the blades should be anointed with lard or oil.

5. The blades of the forceps should be applied to the sides of the maternal pelvis, the convexity outward and the concavity towards the child's head.

6. The forceps should never be introduced directly antero-posteriorly, that is with one blade against the urethra and the other in front of the rectum.

7. The male or pivot-blade is to be held in the left hand,

Fig. 47.

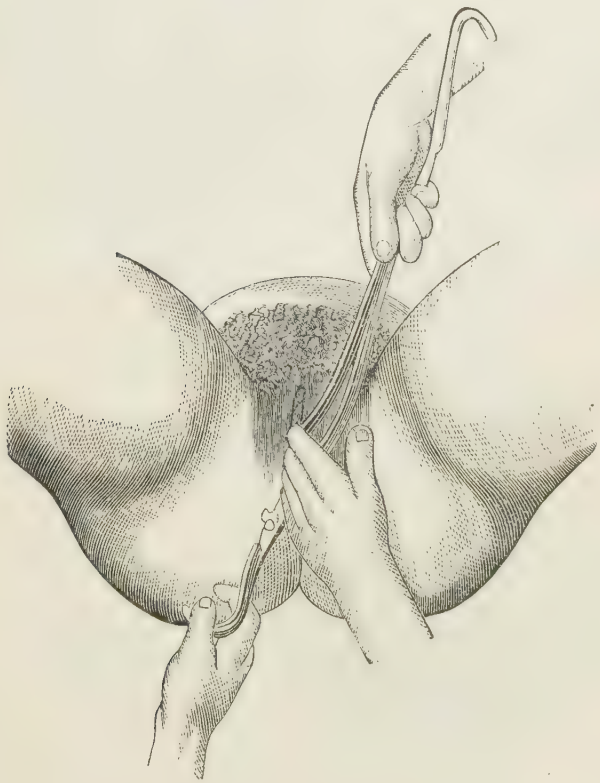


Fig. 47 shows the manner of introducing the forceps.

and always to be applied to the left side of the pelvis. The reverse for the female blade.

8. The blades should always be introduced during the absence of uterine pains.

9. The hand which is not employed in holding the blade should always be introduced into the pelvis, and serve as a director for the entrance of the instrument; care being taken to insinuate the hand between the fœtal head and the circumference of the os uteri, so as to prevent the latter from being grasped by the blade.

10. No force should be used in introducing the blades, such as pushing them up into the proper place: for at times the maternal tissues, or the scalp or ear of the child, prevent their easy entrance; and unless a careful manipulation is used, these may be lacerated. If, when applied, the forceps do not lock easily, they must be withdrawn and reapplied.

11. Slight compression must be made previous to traction, so as to cause the instruments to grasp the fœtal head firmly, and also in order to ascertain if any portion of the maternal tissues be included within the grasp of the forceps. The com-

Fig. 48.

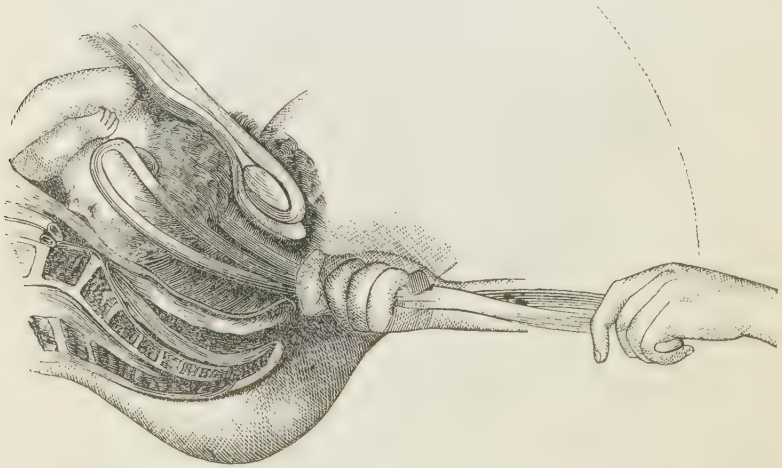


Fig. 48 shows the forceps applied and locked, the head at the brim. The dotted line indicates the direction in which traction is to be made.

pression should always be such as to allow of immediate relax-

ation between each uterine pain. The handles ought not, therefore, to be tied.

Fig. 49.

Fig. 49 shows the forceps applied to the head in the cavity of the pelvis.

12. Traction should always be made in the direction of the axis of that part of the pelvic and perineal curve through which the head is passing. When uterine pains exist, we should always take advantage of them to aid us in the expulsion of the fœtus. Should there be no labor pains, we must imitate the operations of nature. In natural labor, there are intervals of rest; in artificial labor, there ought to be the same; they are required, both for the physical and moral relief of the patient, and they moreover prevent the fatal asphyxia of the fœtus, which a too protracted compression would have a tendency to induce. During instrumental delivery, the different stages of the mechanism of labor must be attended to; hence we must see that the head rotates in its proper position, and that extension or increased flexion takes place as the particular case may require.

13. If the pains continue until the head has passed through the inferior strait or outlet of the pelvis, our traction may be

suspended, in order to allow the delivery to be accomplished, if possible, by natural means. We will thus encourage the normal uterine contractions, and obviate the tendency to inertia of the uterus and consequent floodings. It must be remembered, however, that the instruments are not to be removed, but merely the traction suspended; so that there may be no necessity for their reapplication, should the natural expulsive efforts cease before delivery has been effected.

14. The handles of the forceps are to be held in the left hand, the middle finger of the right hand being placed in front of the joint or lock, to assist in the traction, while the index finger is to be pressed against the child's head, and always retained in contact with it, during the extractive effort. While the finger remains in contact with the head, there is no slipping of the instrument; but if it leaves it, we may be certain that the blades are slipping off the head. Should this caution be overlooked, the forceps may suddenly slip off during a strong traction effort, and lacerate the maternal and fœtal tissues in a most frightful manner. As the head passes over the perineum, the latter, as in ordinary labors, must be carefully protected.

The Cæsarean Section.—This is one of the most formidable operations in obstetric surgery, and, like its almost analogous one of ovarian extirpation, has met with the highest possible praise from some parties, and the most sweeping and unjustifiable condemnation from others. It proposes to extract the living fœtus from the womb through the parietes of the abdomen by the knife, a mode said to have been practiced for the birth of Scipio Africanus, Claudius Cæsar and Julius Cæsar; from the two latter the name of the operation has been derived.

Its objects are: 1. To afford the mother a chance of life in a case otherwise perfectly hopeless; to the child a still better chance of life. The operation is justifiable with an antero-posterior diameter of an inch and a half and three inch transverse, or under, or almost perfect obliteration of the passage by osseous growths, as tumors. 2. To extract a living fœtus from a dead

mother, and which may be done a full hour after the death of the parent with a chance of success. 3. To extract an extra-uterine fœtus in extra-uterine pregnancy, or after rupture of the uterus; under these circumstances the operation is not called Cæsarean section, but gastrotomy.

It has been the misfortune of this operation to delay its performance to the latest period, when labor is commencing, or has been in operation for a considerable time, placing the woman in a condition anything but favorable to the chances for recovery; nothing can be more absurd. The operation should always be performed early, if no doubt exists as to its necessity, *i. e.*, preceding the accession of labor; every hour after the rupture of the membranes the hazard is increased.

I would come as near the completion of the natural period of gestation as possible, but would never wait (by choice) until labor had commenced.

Before operating, the following preliminaries should be observed:

1. The bowels are to be evacuated by injections, *but never by drastic purgatives.* The only admissible aperients are castor oil, or, what is infinitely preferable, the inspissated ox gall, which has a double advantage—of clearing out the bowels, and more particularly of removing flatulency, that troublesome object in all operations of the abdominal cavity.

2. The bladder should be emptied naturally, or by catheter; and here, where extreme deformity exists, the elastic gum catheter is preferable to the silver female catheter usually used.

3. Carefully ascertain the position of the placenta.

4. And lastly, exhibit chloroform, as directed on another page.

The Operation is as follows: First, make a bold incision, from seven to ten inches, along the linea alba, from umbilicus to pubis, more or less, according to circumstances; if necessary, to go higher than the umbilicus, care must be taken *not to cut through, but by the side of the umbilicus*, as it might give rise to umbilical hernia. The incision must be through the integu-

ments and peritoneum, when the uterus is exposed. A somewhat shorter incision is enough through the uterus, taking care to avoid the situation of the placenta. Then, if the liquor amnii be in quantity, remove it by sponges; if not, it will do after the child, placenta and membranes are removed, which must be done without loss of time. When the uterine cavity is emptied see that the os uteri is pervious for the passage of the lochia; to be certain, pass the catheter, or bougie, through the os and vagina.

Dr. Lungren, of Toledo, a successful operator, says in reference to closing the wound: "Becoming satisfied long since that the main cause of failure by the ordinary operation was because the uterus was left to itself, or was closed imperfectly, and being also satisfied, from using them frequently in other operations, that silver wire sutures could remain for years encysted within the abdominal cavity, I determined to employ them in this operation, although from all the information at my command, I was unable to learn that any one had used them for this purpose previously. Spencer Wells, it is true, used a continuous silk suture, one end of which passed through the vagina, and was withdrawn after some days. The traction exerted upon the edges of the incision must have been very slight indeed, if it could have been withdrawn in this manner, but was enough perhaps, as his case recovered. If we look at the direction taken by the peristaltic action of the uterus during a labor pain (and contractions after labor are essentially the same) it will convince any one who examines the condition carefully, of the great importance of sutures in the uterine wound after this operation. Muller, Michaelis and Wigand teach that contractions commence at the cervix, and travel toward the fundus, returning thence toward the os uteri. During a labor pain the os uteri grows tense from contraction of the circular fibres, which, being short, act with great mechanical advantage, and, 'if the fibres of the cervix contracted with the same force as the rest of the fibres of the uterus, this organ could scarcely be emptied of its contents.'

"The fibres of the body of the uterus presenting no resist-

ing force after division, unless secured by sutures, contractions of the longitudinal and transverse fibres, and closure of the os uteri by the circular, must cause gaping of the wound, with extravasation of the contents of the uterus into the abdominal cavity; when subsequent decomposition gives rise to fatal peritonitis and septicæmia. This, I am assured, aside from shock and hemorrhage, is the great cause of death after this operation. For, as Winckel has observed, 'in many fatal cases, the edges of the uterine wound were found flaccid and gaping.' Any one can form an idea of the result of the contractions, by making a small slit in a hollow rubber ball, and slightly squeezing it.

"A second detrimental cause, producing mainly the same result as the former, is the rapid fatty degeneration of the uterine walls. The edges of the incision become thin and separated; gaping is produced as in the former case, followed by a fatal result, except in those fortunate cases where union takes place between the uterine and abdominal walls, thus preventing the escape of the uterine fluids. As the fatty degeneration of the uterus after delivery commences on the *interior* surface and proceeds towards the peripheral, the sutures being introduced partly through the wall of the uterus, about one-quarter of an inch from the edges of the incision, and carried nearly through the substance of the uterus, as in hare-lip operation. Each suture being twisted tightly, twice only, and the wire cut off closely to the twist, which is then turned downward into the wound, at right angles to the suture, care being taken to approximate the peritoneal edges. This method of introducing the sutures is the more necessary, for as soon as the incision is made, and the contents of the womb extracted, retraction of the circular fibres cause *eversion* of the lips of the wound to a very great degree, the external edges being beveled off, and as soon as absorption commences below in the interior, the slit is enlarged, affording ready exit for the fluids." When the hemorrhage has ceased, and after sponging out with great care all clots from the abdominal cavity, the external wound should be closed by using silver wire for the deep sutures, and silk to unite the integ-

ument. The peritoneum should be included in the deep sutures to avoid blood or pus falling into the cavity of the abdomen.

Strips of lint, saturated with a mixture of carbolic acid, one part, linseed oil, two parts, are laid lengthwise over the incision. Strips of adhesive plaster between the sutures, three quarters of an inch wide and twelve inches long, complete the dressing and prevent all access of air to the wound. A binder is put around the body, and the patient placed in bed. The peritoneal surfaces are retained in contact until union takes place, and all danger of escape of fluids is averted.

Gastro Elytrotomy.—In this operation it is proposed to divide the vagina at its juncture with the cervix, this being reached by an incision extending from the symphysis pubis to the anterior-superior spine of the ilium. The loosely attached peritoneum is then raised up, and the child removed through the os uteri by turning, and extracted through the opening in the abdomen. It must be at once apparent that the chief dangers of the Cæsarean section are obviated; for the peritoneal cavity is not opened (and, therefore, the risk of peritonitis is much lessened,) there is no escape of blood into the peritoneum, and the uterus itself is not incised. The operation, as described and performed by Thomas, is as follows:

1. An incision is made extending from the symphysis pubis to the anterior-superior spine of the ilium, dividing the thickness of the abdominal walls until the peritoneum is reached.

2. The peritoneum is lifted up by means of the fingers, or by metal retractors, so as to admit of the juncture of the vagina and uterus being reached. So far the operation is precisely that which is practised by surgeons for the ligature of the iliac arteries, and offers no particular difficulties.

3. The vagina is made to protrude in the wound by means of a metal sound, introduced through the vulva, and divided to a sufficient extent.

4. This will allow the cervix to be reached, and it is drawn into the iliac fossa by a blunt hook passed into it, while the fundus uteri is depressed by an assistant in an opposite direction. If the os uteri be sufficiently open (and if possible it

should have been previously dilated with Molesworth's dilator,) the hand is passed into the uterus, and the child removed by turning.

SIGAULTEAN OPERATION.—It is not worth while to describe this operation further than to say that it consists in a division of the pubic ligaments, permitting a separation of the pubic bones, and theoretically enlarging the diameters of the pelvis. It is by general consent of eminent accoucheurs altogether abandoned.

PREMATURE LABOR.—This operation is admissible.

In such pelves as will not allow a full-grown fœtus to pass, when by this step one viable may pass; as a rule an antero-posterior diameter of two and a half inches will justify the induction of premature labor, as the biparietal measurements of the head at the thirty-third week will be two and three-fourths inches; at the thirty-fifth week, three and one-eighth inches; and at the thirty-seventh week, three and three-fourths inches. If the antero-posterior diameter of the pelvis be three inches, wait till the eighth month; if two and three-fourths inches, wait till the seventh and a half month; if only two and a half inches, limit waiting to the seventh month; lower measurements than these must terminate in abortion, embryotomy, or the Cæsarean section. If a twin case can be of a certainty diagnosed, the completion of pregnancy can be approached nearer, relying on the probable less size of the fœtuses. In some cases, the child dies at a certain period of pregnancy; if that period is a viable one, the induction is justifiable.

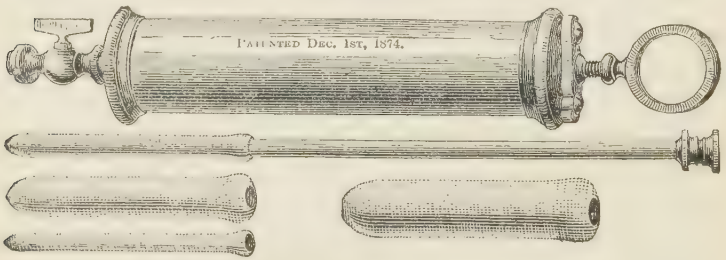
It is also sometimes admissible where there is excessive vomiting, effusions into serous cavities, strangulated hernia, convulsions, disease of the heart, aneurism, or hemorrhage. There may also be a contraction of the opposite diameter, or exostosis of the pelvis; and lastly, fibrous tumors and cancer.

Without discussing the various methods that have been resorted to, to effect premature labor, I shall describe at once the operation that in my hands has proved the most satisfactory, and which is admitted by all late authorities as being the most successful. First, overnight pass an elastic bougie six or seven

inches into the uterus, coil up the remainder of the instrument in the vagina; this will keep it *in situ*. Next morning some uterine action will have set in. In the afternoon, at an appointed time, proceed to *accelerative* measures.

Before rupturing the membranes, adapt a binder to the abdomen, and let this be tightened, so as to keep the head in close apposition to the cervix. This will often prevent the cord

Fig. 50.



MOLESWORTH'S DILATOR.*

from being washed down by the rush of liquor amnii. Dilate the cervix by Molesworth's medium, or large dilator, until the cervix will admit three or four fingers. Then rupture the membranes, and, before all the liquor amnii has escaped, introduce the dilator again, and expand until the uterus is open for the passage of the child. If the presentation is natural, if there is room, and if there are pains, leave the rest to nature, watching the progress of the labor. If these conditions are not present, and one or other is very likely to be wanting, proceed with accelerative methods—that is, to the forceps or turning, or, in cases where the passage of a live child is hopeless, to craniotomy. By pursuing this method, we may predicate, with great accuracy, the term of the labor. Twenty-four hours in all—counting from the insertion of the bougie—should see the completion of the labor.

In cases of deformity to such an extent as to preclude the possibility of delivering the fœtus in a viable condition, abortion may be resorted to. Hale says: "Many methods have

*The climax dilator of Dr. Molesworth has been found a very useful instrument by those medical men who have employed it, not only in the instances above referred to, but, likewise, for dilating anal or rectal strictures; stricture of the œsophagus; and the female urethra when it is desired to remove calculi from the bladder; as a tampon in all cases of hemorrhage where the parts can be reached, but especially for plugging the nares in epistaxis; to rectify or straighten the cervix in uterine flexions; and to dilate the sinuses of deep-seated abscesses, when this is desired, it may also be used advantageously to overcome hour glass contraction of the uterus.

been practiced, but such as the administration of drugs, termed abortive, are *extremely culpable*, and the douche, as recommended by Prof. Kiwish, is *entirely too tedious and complicated*. Electricity is uncertain and painful, and dilating the os uteri by tents, objectionable. I prefer, after much observation and considerable experience, *the introduction of the uterine sound*. This must be carried up nearly to the fundus, then gently turned around two or three times. Up to the end of the third month this is the easiest and safest method practiced, if properly done; no second operation is necessary.

Embryotomy.—The conditions, which may be held as warranting the operation of Embryotomy are those in which the forceps and turning are of no avail, and which, at the same time, preclude the passage of a living child. In so far as contraction of the conjugate diameter at the brim is concerned, we have already seen that, in the case of a fully developed child, we can scarcely expect a successful result from turning, when that diameter is much less than *two and a half inches*; and this, therefore, we may take as the limit within which the operation may be demanded. Tumors of any kind,—bony, malignant, or ovarian, and impaction of the head, are illustrations of other causes which, independently of ordinary pelvic distortion, may render delivery by embryotomy the only method from which we can anticipate a favorable result.

Among the rarer conditions demanding craniotomy are impacted mento-posterior positions of the face, cases of locked twins, in which one head can only be released by perforating and reducing the bulk of the other, double-head monsters, and hydrocephalus.

The condition of the parts, or the stage of labor at which the operation should be performed, is a matter of importance. Although a very moderate dilatation of the os is all that is essential, it affords great comparative facility to the operator, and proportionate safety to the mother, if the head is divested to a great extent of the covering which, in the early stage of labor, it derives from the lower segment of the uterus. It is of even greater importance that the head should have descended, to

some extent, into the pelvis, and be within easy reach; for the operation upon a head which is still above the brim will be found, even under circumstances which are in other respects favorable, to be a very different operation from that in which it is arrested within the cavity of the pelvis.

Embryotomy almost always involves craniotomy, so that the two terms are often used as synonyms. Craniotomy consists of several stages, some of which may alone be required; or it may be necessary before effecting delivery to go through the whole of them, one after the other. We purpose, therefore, to explain these successive steps, as points in detail of one method of operative procedure, according to the degree of pelvic distortion, or other circumstances which may constitute the special impediment, and including the use of the cephalotribe.

The first step in all operations of craniotomy is perforation, and for this, various instruments have been devised, which are termed perforators. The condition of the head, upon which its impaction or resistance depends, is, in the first place, to be overcome, in order to permit of its collapse; and it is with this object solely that we perforate, and so act otherwise as to admit of the escape of the contents of the cranium, so that the forces, natural or artificial, may be brought to bear upon a part which is now susceptible of a considerable diminution in its diameters. The form of instrument which has by many European practitioners been preferred, is one which, in the principle of its construction, is almost identical with the ordinary trephine; but what is preferred and almost invariably used by English and American operators, is some modification of the perforating scissors of Smellie. The instrument consists of two blades

Fig. 51.

HOLMES' PERFORATOR.

with shoulder stops, the blades, when in apposition, forming a triangle of which the base is at the stops, with cutting edges,

converging to a point, which is the apex of the triangle. The instrument is thus one which is to be used with the greatest possible caution, lest injury should be inflicted upon the soft parts of the mother. When the blades are separated by pressing the handles together, a powerful spring between the latter causes them to close so soon as the grasp is relaxed. Its mode of application is as follows: The ordinary preliminaries to the other operations of midwifery having been carefully observed, the woman is to be placed, as usual, across the bed. Two fingers of the left hand are then introduced into the vagina, and brought to bear upon the most depending portion of the vault of the cranium. With the greatest possible caution, the blades are then to be passed along the palmar aspect of these fingers, which serve as a guard to the maternal parts, until it reaches the surface of the cranium, through which it is thrust by a combined pushing and boring movement as far as the stops. While this is being effected, particular attention should be given, so that the force be applied at right angles to the surface against which it impinges, otherwise the point is apt to glance off, and may seriously wound the mother.

Some have advised that perforation should be effected at the sutures or fontanelles; but, although this renders the operation somewhat easier, the disadvantage is that the subsequent collapse of the head, by overlapping of the flat bones of which its vault is composed, will necessarily obliterate the aperture, and impede the escape of the cerebral tissue. It is, therefore, much better that we should perforate the parietal bone which presents; and, when this has been done in the manner described, the handles are pressed together and the blades separated. This, by tearing asunder the parts, makes a lacerated and irregular gap in the cranial walls; but, in order to render the aperture more patent, and thus facilitate the escape of the contents, the handles are turned so as to bring the blades half round, and another similar incision is made at right angles to the first. The perforator is then to be thrust into the cavity of the cranium, and freely moved about in all directions so as to break up, as far as is possible, cerebrum, cerebellum, and membranes;

and if the child is alive, it will be proper to pass it in the direction of the medulla oblongata, so as to cause its death, as cases have occurred in which, after perforation and escape of the greater portion of the cerebrum, the child has been born alive. The perforator is then to be removed with the same precaution as was observed on its introduction. If the breaking up of the brain has not been satisfactorily accomplished, this may be completed by the crotchet, which, indeed, some operators prefer altogether for this purpose, withdrawing the perforator so soon as the breech in the cranial walls has been effected.

In order to encourage compression, and the consequent diminution of the cranial diameters, it has been suggested that we should extract the brain-substance by a scoop or spoon, or by the injection within the cranium of a powerful stream of water. So soon as a large portion of the cerebral contents has been permitted to escape, the bones of the skull will collapse under the influence of very trifling compression. This, however, may completely fail, whence arises the necessity of proceeding to another stage of the operation.

If nature, after complete decerebration, fails to effect some advance of the head, it will then be proper to attempt delivery by traction exercised upon any part of it where a secure hold

Fig. 52.

CROTCHET AND BLUNT HOOK COMBINED.

may be maintained. The ordinary crotchet is the instrument which was almost exclusively employed in ancient times, and even in the present day is frequently resorted to. The idea here is to fix the crotchet upon any part of the bones, and, if possible, at the foramen magnum, or the sella turcica, where the best and most effective grip may be had, with the least risk of slipping. The directions which are very generally given by the older writers for the employment of the crotchet after per-

PLATE X.

Fig. 1.

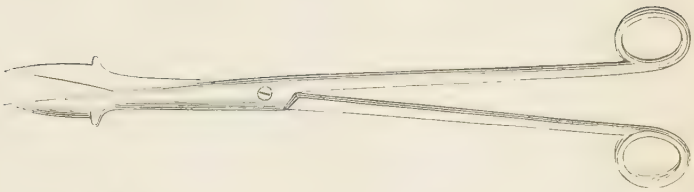


Fig. 3.

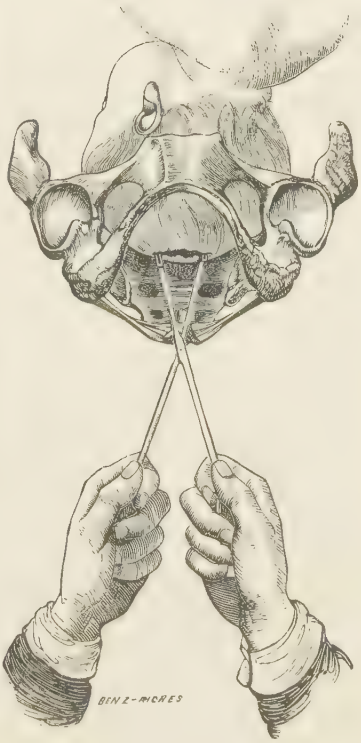


Fig. 4.

Fig. 2.

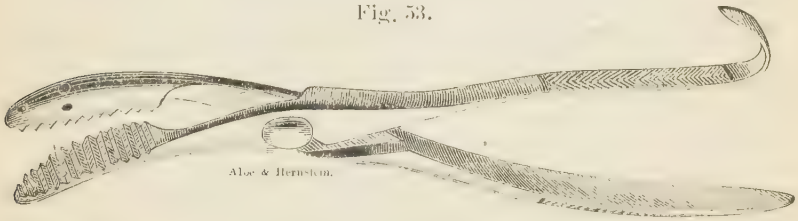
CRANIOTOMY.

Fig. 1. Smellie's Scissors.
Fig. 2. Braun's Perforator.
Fig. 3. Thomas' Perforator.
Fig. 4. Method of using Smellie's Scissors.

foration, for the purpose of traction, seem to point to fixing it upon some part of the inner surface of the parietal bone, and, having thus secured a good hold, to drag steadily downwards. The great objection to the use of the crotchet in this way is that it is always unsafe, and, in the hands of the inexperienced, eminently so. No one uses the crotchet for this purpose, unless he has previously passed up the finger of one hand in order to protect the soft parts from the possible effects of a sudden and unexpected detachment of the instrument, which under other circumstances, would probably inflict upon the mother severe, and possibly dangerous lacerations.

The Craniotomy Forceps is, as now constructed, an instrument which is greatly superior to the crotchet, and is applicable

Fig. 53.



THOMAS' CRANIOTOMY FORCEPS.

to almost all cases in which the latter has been employed. When perforation, with evacuation of the cerebral contents has been completed, and it is found necessary to proceed to the further stages of the operation, the blades of the craniotomy forceps are to be applied, one within the other without the cranium, that which is convex on the outside being for application over the scalp. One blade is fitted with sharp teeth corresponding to pits or depressions upon the opposed surface of the other. When suitably adjusted, therefore, all that the operator has to do, is to press the handles together with some force, which will insure a grasp upon the wall of the cranium, over a more extended area, as well as more firmly, than can under any circumstances be effected by the crotchet. The handles being firmly bound together, traction must now be practiced in the direction which may be proper to the actual position of the head. If the bone gives way, the detached portions must be cautiously

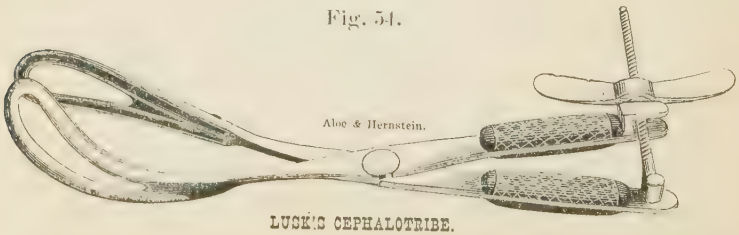
removed, and a fresh hold obtained wherever the parts may seem most likely to bear the strain.

No part of the operation requires more caution than the removal of the fractured portions of the bones, which are often jagged and splintered, and always sharp at the edges, so much so, sometimes, as to cut through the cuticle of the fingers of the operator, which may afterwards be observed to be scarred as if by the edge of a sharp knife. When a fragment of bone becomes detached in an attempt at extraction, either by the crotchet or craniotomy forceps, it is always better to remove it at once, and for this purpose the finger will generally suffice. When our object is to remove the whole cranial vault, the bones are, in the first place, to be broken and separated from their attachments within the scalp—a part of the operation which is best effected by means of the craniotomy forceps. A smart wrench by the wrist is generally all that is necessary to fracture the bone; when the severed portion remains between the blades may be removed by the aid of the instrument.

There is another method of procedure, not often resorted to, but which, in some instances, is of undoubted efficiency after perforation. This is the ordinary operation of turning, which may sometimes be effected without much difficulty, when by the perforator we have reduced the bulk of the child's head. To attempt this in cases of very great distortion, would on many grounds be improper; but in more moderate disproportion, it is sometimes an efficient and valuable method of completing delivery.

Cephalotripsy.—We have to consider the subject of Cephalotripsy as the final stage of the operation of craniotomy in

Fig. 54.



LUSK'S CEPHALOTRIBE.

cases of great pelvic contraction. Perforation, decerebration,

and removal of the flat bones, have all, we shall suppose, been successively tried, but to no purpose. Can anything further, we ask ourselves, be done in this same direction?—a question which finds its reply in the operation which we are now considering. The object of the instrument is, as its name implies, to *crush* the unyielding base into a pulp, and thus bring it through the contracted diameters. The blades are introduced, in the same manner as those of the ordinary long forceps, in the direction in which there is least resistance, which will generally be the sides of the pelvis. They are passed high up, so as to reach quite beyond the base, which it is our object to crush; and, being adjusted, the screw is then turned steadily and cautiously, while the finger within the vagina takes note of what is being done, and is ready to remove at once any spiculæ of bone which may crop up under the influence of the crushing force. If the deformity is great, a second crushing may be necessary, and for this purpose the blades should be removed and reintroduced, so as to secure a grasp which should be, as nearly as possible, at right angles to the first.

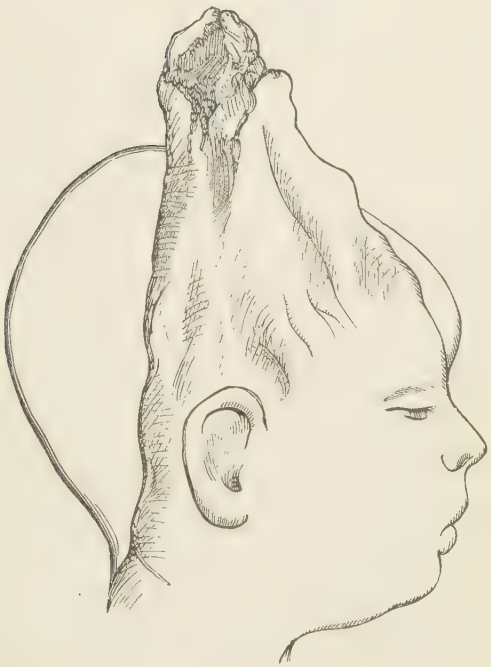
It must not be supposed that it is only to cases in which the whole of the flat bones have been already removed that the operation of cephalotripsy is applicable. On the contrary, it may often be used with advantage when only a portion of the vault has been got away. This is generally sufficient to admit of the easy introduction of the blades, so that, if unusual difficulty is experienced in extracting the bones, and the head refuses to advance under steady traction, the operation will have the double effect of crushing the base and permitting the collapse of the scull, and complete escape of all its contents. In this case, however, we should watch with special caution the effect of the compression upon the cranium, otherwise the maternal parts may, at any moment, be wounded by fragments of the tabular bones.

Leishman says: "A subject, which has given rise to no little discussion, is, whether or not we should, after crushing, use the cephalotribe as a tractor. Pajot condemns such a course, and recommends a procedure which he describes as

'*cephalotripsie repetee sans tractions*,' in which he leaves expulsion absolutely to nature. He also recommends—what, if feasible, is certainly advantageous,—that we should rotate the head which has been operated upon, so as to bring its crushed diameter in relation with the contracted diameter of the pelvis. This condemnation of the cephalotribe as a tractor seems chiefly to be supported by those who, in France or elsewhere, uphold the use of the bulky instruments which are very obviously less suitable for such a purpose. What seems, therefore, to be the chief advantage of the lighter English instrument, is that traction may by it be more safely performed. Indeed, it appears to us in the highest degree irrational that we should forego all the advantages of traction which spring from such a firm grasp of the head as the cephalotribe gives. Caution, indeed, we can scarcely exaggerate; but we can see no reason why, after efficient crushing, we should not pull gently with the handles backwards, which we can, of course, do with more safety, and at greater advantage, than if there was no pelvic curve to the blades. Another disadvantage of removing the blades, and leaving the further progress of the case to nature, is said by Dr. Barnes to consist in the resiliency of the fœtal structures; so that a head, flattened within the grasp of the cephalotribe, so as to measure not more than an inch and a half, may spring out on the removal of the blades to more than two inches."

When the mutilated head at length glides through the chink which has so obstinately barred its progress, the young operator may hastily conclude that his operative difficulties are necessarily at an end. In cases of minor disproportion, it will no doubt be so; but, in extreme distortion, the descent of the shoulders and trunk may be attended with very considerable difficulty. If the remains of the head be still within the grasp of the cephalotribe, it is proper to continue the tractile force backwards, as far as may be practicable with a due regard to the integrity of the perineal structures. This is done with the view of disengaging the anterior shoulder, or bringing it a little in advance, so that the blunt hook may be fixed in the axilla to

PLATE XI.



CEPHALOTRIPSY.

The above drawing shows the extent to which the bulk of the Foetal head may be reduced by the cephalotribe.

pull it through. It may be necessary at this stage, when the blunt hook and crotchet fail to effect delivery, that the cephalotribe should be again used, and the trunk crushed prior to delivery, a proceeding which, although rarely necessary, is certainly preferable to the employment of such violence as might otherwise endanger the tissues of the mother.

There are cases in which it is found necessary to lessen the bulk of the head in breech presentations, or after turning, the head being arrested after the trunk has been successfully disengaged from a contracted pelvis. In this case, the conditions of the operation are inverted, but are not by any means, as a rule, more difficult. Perforation may be effected behind the ear, and this situation should be selected as the point at which we may most readily attain the cavity of the cranium, and give exit to the brain-substance, so as to permit of the collapse of the head. In this case, also, the cephalotribe may be employed with great advantage, by crushing the base of the skull, which in this instance is in advance of the vault; and, if the measurements are such as to have already admitted of turning, or of the descent of the breech, we may be almost sure that the collapse of the head, which must now necessarily ensue, will amply suffice to permit of its passage through the pelvis.

Embryulcia.—When some part of the child other than the head presents, it may be necessary to use the perforator upon the trunk, and endeavor to extract the child by the evacuation of the contents of the thorax and abdomen. This is one of the methods, for example, which have been practiced in cases of transverse presentation in which turning is impracticable. There is no difficulty in such a case in making a breech in the thoracic walls, below the axilla, of sufficient size to admit of the removal of the lungs and heart, and, subsequently, by perforation of the diaphragm of the abdominal viscera—the most important of these being the liver, which, as is well known, is of great size in the fœtus. The breaking up of the organs prior to their removal cannot be effected in the same bold manner as in craniotomy as we might easily perforate the trunk, and wound the walls of the uterus. After thus reducing the bulk of the trunk,

what should now be attempted is, an imitation of the natural processes of spontaneous evolution, or spontaneous expulsion, which may be effected by forcibly dragging down the breech by the blunt hook or otherwise.

Dr. Barnes has lately suggested another operation, by which the wire ecraseur may be used for the purpose of bisecting the head, or otherwise operating upon the body of the fœtus. This method of performing Embryotomy was demonstrated by the inventor before the Obstetrical Society, the instrument employed being the ecraseur. He recommends the employment, not of the wire rope suggested by Hicks, but of a single loop of strong steel wire, which he manipulates so as to pass it through the cervix uteri and the chink of the pelvic brim. The crotchet being passed into the hole made by the perforator, and held by an assistant so as to steady the head, the loop is guided over the crotchet to the right side of the uterus, where the face lies. "The compression being removed, the loop springs open to form its original ring, which is guided over the anterior part of the head. The screw is then tightened. Instantly the wire is buried in the scalp; and here is manifested a singular advantage of this operation. The whole force of the necessary manœuvres is expended on the fœtus. In the ordinary modes of performing embryotomy, as by the crotchet especially, and in a lesser degree by the craniotomy forceps and cephalotribe, the mother's soft parts are subjected to pressure and contusion. The child's head, imperfectly reduced in bulk, is forcibly dragged down upon the narrow pelvis, the intervening soft parts being liable to be bruised, crushed, and even perforated. And this danger, obviously increasing in proportion to the extent of the pelvic contraction, together, with the bulk of the instruments used, deprives the mother, in all cases of extreme contraction, of the benefit of embryotomy, leaving her only the terrible prospect of the Cæsarean section. When the anterior or posterior segment of the head is seized in the wire loop, a steady working of the screw cuts through the head in a few minutes. The loose segment is then removed by the craniotomy forceps. In minor degrees of contraction, the

removal of one segment is enough to enable the rest of the head to be extracted by the craniotomy forceps. But in the class of extreme cases, in which this operation is especially useful, it is desirable still further to reduce the head, by taking off another section. This is best done by reapplying the loop over the occipital end of the head."

Decapitation.—An instrument closely resembling in shape and general appearance the blunt hook, (a pair of sharp scissors will do,) but which is usually sharp within the curve, has been used with success in the treatment of those difficult cases of transverse presentation in which the ordinary methods of treatment have failed. This operation simply consists in abridging the long diameter of the child by a section made at the neck. It is chiefly applicable to those instances in which we have to deal, either with a neglected case of shoulder presentation, where the body of the child is partly impacted, or is so tightly embraced by the uterus as to render turning impracticable; or with a case in which the difficulty arises mainly from pelvic distortion, complicated with a transverse position of the child.

The first point to be accurately ascertained is the position of the body of the child, whether dorso-anterior or dorso-posterior. This being determined, in the manner already described, by an observation of the prolapsed hand, and the woman being placed in the ordinary obstetric position, or on her back, the arm is to be firmly pulled downwards, so as to bring the neck, as far as is practicable, within the reach of the operator, and is then to be intrusted to an assistant, whose duty it is to maintain the position by steady and moderate traction. The bladder, and, if it be necessary, the rectum, are now to be emptied of their contents, and the hands and hook smeared with lard or oil. The fingers of one hand—right or left, according to the position—are then gradually insinuated in a direction corresponding to the anterior surface of the child, so as to reach the front of the neck. With the other hand the operator then introduces the hook, "laying flat," says Barnes, "between the wall of the vagina and pelvis and the child's back, until the beak

has advanced far enough to be turned over the neck. The beak will be received, guided, and adjusted by the fingers of the left (opposite) hand. The instrument being *in situ*, whilst cutting or breaking through the neck, it is still desirable to keep up traction on the prolapsed arm. When the vertebræ are cut through, some shreds of soft parts may remain. These may be divided by scissors, or be left to be torn in the second stage of the operation—the extraction of the trunk."

The delivery of the trunk and limbs of the child is now to be effected, mainly by pulling upon the arm; but, should the force requisite be considerable, it will be proper to pass the blunt hook into the axilla of the opposite side, in order to economize the tractile force on the depending arm. Care must, however, be taken not to use the hook with too great force, as by causing the premature descent of the upper shoulder we would throw the great diameter of the shoulders across the pelvis, and thus, it may be, render the extraction of the trunk a matter of increased difficulty. Generally speaking, no great difficulty, in the absence of pelvic deformity, will be encountered in this stage of the operation; and steady traction will cause the shoulders, trunk and breech, successively to pass along the pelvic canal. The head, if completely separated, will move to the side, and will be no obstacle to the passage of the body.

The extraction of the head of the child is by no means an easy operation, and is sometimes, in fact, the most difficult point of all.

The great obstacle, in such cases, arises from the mobility of the head, which rolls about within the cavity, and can sometimes only be seized with difficulty. If, however, the head can be steadied and pressed downwards, the difficulty in question may be overcome. If it be possible to fix the crotchet, or a small blunt hook, in the foramen magnum or orbit, success may, in this way, with the aid of the fingers, be quite practicable; but the risk of the crotchet slipping is so considerable, that the more experienced modern operators have pretty much discarded that instrument in favor of the others which have been men-

tioned. The safest and most satisfactory operation, when it is practicable, is that by the ordinary midwifery forceps. The difficulty in this, as in the other operation, is to fix the head; for, as soon as one blade is introduced, the head may escape to the upper part of a relaxed uterus, or to either side, so as completely to elude the grasp of the blades; but if we can succeed in seizing the head, either antero-posteriorly or laterally, delivery will usually be completed without any further obstruction.

ANÆSTHESIA IN OBSTETRIC PRACTICE.—One of the greatest of many boons bestowed on mankind was the application of chloroform to modern surgery. Valuable as this agent is acknowledged to be as a soother of human pain and misery, it has met with many able, and perhaps conscientious opponents. It is, however, quite evident, that its supporters are by far the more numerous. There cannot be a question but that its indiscriminate use has led to many abuses, which would have been better avoided; but it is wrong to condemn the use of this or any agent merely on the ground of its having been diverted from its utility.

To discountenance or reject an agent in medicine on the ground of its being hazardous to life is an absurdity. All our most esteemed and most active preparations in the Materia Medica are hazardous to life, and might with equal propriety be denounced. Yet these are agents that cannot be dispensed with; they are not only valuable, but really necessary to practical medicine; and the only point to be guarded against is the *abuse*, not the proper and legitimate use of them. I have no doubt that the use of chloroform has more rapidly advanced from the peculiar nature of the arguments advanced in opposition to it. Admitting then that chloroform is absolutely necessary in all important and extensive operations, and that even in the common forms of labor it may be considered legitimate by some, (although I cannot myself go so far as to advocate it in such cases,) I shall now proceed to lay down some general rules for its employment.

First.—In cases of labor, it may be used in severe, short, but ineffectual pains, which restrain bearing-down efforts. In these, chloroform renders uterine contractions longer, stronger,

and more efficacious; and thus it accelerates the accomplishment of the process.

Second.—Where the parts are rigid and unyielding, it assists in dilatation, relaxes the muscular fibre, and relieves the severity of pain arising from rigidity.

Third.—In long-protracted cases, worn down and suffering from nervous debility, and also irritability, it restores the physical powers, relieving both pain and anxiety.

Fourth.—In some forms of convulsions it has been useful but requires care.

Fifth.—In the severer operations, where great manual exertion, mechanical aid,or cutting instruments are required, a complete state of anæsthesia is often necessary.

It is not to be used in convulsions of apoplectic or epileptic type; or, when the patient is strongly opposed to it; and even when the aversion to it is only moderate, it should not be urged.

The time for exhibiting it, should not generally be until the second stage of labor is established; unless some unusual severity of pains harass the patient unnecessarily, when it may be used somewhat earlier.

In the mode of exhibiting it, I have always preferred a pocket-handkerchief, bunched up and placed in an ordinary glass tumbler or teacup, into which pour a drachm or more of chloroform. And here bear in mind, the exhibition of this agent must be regulated, not by the quantity of chloroform poured into the handkerchief, but by its effect on the patient. At first the tumbler must be held near the nose and mouth, so as to allow a free mixture of atmospheric air, and before commencing its use a deep inspiration should first be taken; after it has been breathed a short time, mixed with atmospheric air, the tumbler may be placed over the nose, as the small amount of air passing through the sides of the tumbler will be quite sufficient, still bearing in mind that deep anæsthesia (or snoring,) is not requisite in cases of labor, but just enough to mitigate the sufferings, and retain sensibility (except as to pain) during the whole period of its use.

Necessary Cautions.—The pulse should be constantly felt, and if untoward effects arise, the chloroform must be removed.

At first admit a free mixture of atmospheric air, the temperature of the apartment being moderate.

The patient should not be placed in deep insensibility, or snoring, except in grave operations.

Never commence chloroform in large doses.

Never give chloroform immediately after a full meal, nor yet after long fasting. If a choice can be made as to time, select about two hours from the last food taken. If exhibited soon after food, it is apt to excite vomiting.

In order to be prepared against any unforeseen danger, it is right to include here the means to be employed in case the chloroform should have too powerful an effect.

If fainting, or such a reduced action of the heart should occur, the most efficient means of relief are:—to remove the handkerchief instantly, to blow upon the face of the patient, admit fresh air, sprinkle cold water, and excite artificial respiration, by alternate compression and expansion of the chest, but in no wise to administer stimulants or any liquid by the mouth.

Strong ammonia or smelling salts may, however, be held to the nose.

THERAPEUTICS OF OBSTETRIC OPERATIONS.—After any obstetric operation the patient should, as at the termination of natural labor, have her soiled clothes changed for clean, fresh ones, and the bed should be also made up with clean, freshly aired clothes, after which she should be kept in bed, perfectly free from excitement and annoyance of all kinds. After these things have been attended to, nothing more locally is necessary in case of contusion or laceration of the vulva, than simple dressings, such as will shield the wound from the action of the atmosphere. Cloths kept constantly wet with weak *arnicated* water (one tablespoonful of the tincture to a pint of water,) are excellent. A dose of *Arnica, 3d*, should be given internally, and repeated once in two or three hours, if there are any indications of sympathetic fever. Should this rise high, *Aconite* should be alternated with the *Arnica*.

If the patient has lost much blood, *China* should be alternated with the *Arnica* from the first.

If severe syncope, with deadly paleness of the face is present, or the countenance assumes a livid appearance, and there is subsultus tendinum, *China* is indispensible. If the patient does not speedily rally, use a stimulant until reanimation takes place. The *China* should be continued until the patient has recovered from the effects consequent upon the hemorrhage.

Staphysagria has been recommended as a remedy for severe lacerations.

Direct an unstimulating nourishing diet; food highly spiced or seasoned to be, of course, avoided under all circumstances.

PART V.

THE PUERPERAL STATE.

CHAPTER I.

MANAGEMENT OF THE PUERPERAL STATE.

The heat and perspiration produced by the violent exertions of the second stage are likely to be followed by chilliness when the labor is over. You may, therefore, remove the soiled sheet from beneath the patient, and substitute a warm, dry napkin; and also apply to the external genitals a similar napkin, which the nurse usually keeps in readiness for the purpose. You may likewise direct the nurse to throw an extra blanket over her, and to give her some warm drink, such as tea or gruel.

Nurses are very fond of adding some spirits to the tea or gruel; but, as a general rule, such stimulants should be forbidden, unless the patient appear exhausted, when it will be a good plan to give an egg beaten up with a teaspoonful or two of brandy. As the ordinary manipulations of labor are now concluded, the medical attendant is at liberty to leave the bedside for a short time to wash his hands, etc., but he should not be long away from his patient.

At the end of two hours the patient should be cautiously attended to, made dry and comfortable, and the vulva may be sponged with a little tepid water, to which a few drops of the tincture of Arnica have been added; and this application should be repeated once or twice, in place of the lard or pomade, or any other herbaceous decoctions which are usually employed.

The room ought to be shaded, and silence preserved as much as possible, so that no excitement be induced. The temperature should be moderate, consistently with the season of the

year, the feelings of the patient, and the disposition to chills or perspiration; good ventilation should be secured, taking care that the patient is not exposed to any draught; a tendency to sleep should be encouraged, as the best of restoratives after the fatigues of labor. When she has thus rested, the infant may be put to the breast; and this ought to be done within twelve hours after delivery. In cases where there is hemorrhagic tendency, the sooner the child is applied to the breast the better. There is that strange, hidden sympathy between the uterus and mammary glands, that the one responds to the other, as if thus commanded, and a child applied to the breast, by its sucking, contracts the uterus.

The simplest nourishment should be administered for the first few days, until the excitement caused by the perfect establishment of the lateral secretion has passed over. This may consist of gruel, panado, sago, arrow-root, bread, light broths or beef tea, (if demanded by an unusual debility of the patient,) boiled rice, etc. After the milk-fever has gone by, which is generally the third or fourth day, she may have stronger broths made from chicken, beef, mutton, or veal, with rice or vermicelli, or fish and chicken in the substantial form,—and, when the bowels have acted, such other kinds of animal food as are suitable to her condition. The administration of some plain solid food after the third day, unless counter-indicated by any special circumstances, will tend to assist the peristaltic action of the bowels.

The diet must be a little modified, if the patient should not perform the duties of a mother, either from necessity or will; in this case the diet must be more sparing, until the milk ceases to accumulate in the breasts.

Pure water is the best drink for the lying-in woman when she requires anything to allay her thirst. In no condition is mental calm more necessary than in the puerperal state.

A gentle moisture of the skin should be preserved; but abundant perspiration, if possible, avoided, or watched with care.

During the first week after delivery, the woman should remain in bed, and be kept strictly in the recumbent position.

During the second week, she may put on a loose dress, and lie on a sofa, or recline in an easy chair, taking care to stand or sit upright as little as possible. During the third week, she may sit up, leave her room, and walk a little about the house. If the weather be warm and favorable, she may go out of doors after the end of the third week; but in winter it is better to wait until the end of the month at least.

Displacements, such as prolapses uteri, are very likely to be caused by getting up too soon after delivery; the frequency of such complaints amongst the poor is thus accounted for. Secondary hemorrhage, also, may be thus produced.

AFTER-PAINS.—The return of the uterus to its normal condition can only take place by means of successive contractions of its muscular fibres, and the expulsion of the fluids which are contained within its cavity and tissues. These contractions are attended with more or less pain; they are least severe after a first labor, and are most acute in nervous and sensitive women. They usually come on very soon after delivery, and last for a day or two, being sometimes so severe as to disturb the patient's rest. The blood and other fluids which are evacuated from the cavity of the womb, after the expulsion of the placenta, constitute what is termed the *Lochia.*

The pains which accompany the first discharges, mixed with coagula, are termed *After-pains*; they are felt in the abdomen and loins, and are sometimes severe: they seem to be necessary to ensure the speedy and safe return of the uterus to its pristine condition, and an entire absence of them may not be desirable.

THERAPEUTICS:

Arnica, given immediately after delivery, is of great service. If it does not diminish or prevent after-pains, it at any rate diminishes the tendency to hemorrhage, by its soothing effect upon the system at large, in a far superior manner to *Opium.* If the pains are moderate, they may be left to nature; but if they are violent, or frequent, so as to deprive the patient of rest, *Coffea* or *Chamomilla* will soon calm them, and procure the rest so much desired.

Coffea will be preferable for very nervous and excitable women, to whom the pain seems insupportable, if they are sleepless, or have been used to chamomile tea.

Chamomilla, on the other hand, ought to be given when the woman is accustomed to coffee-drinking, if she is of a quick temperament, and is troubled with thirst.

Nux Vomica is useful if the pains bear upon the rectum, producing a sensation as of desire to go to stool;—especially if the patient be of a quick and determined character; if, on the contrary, she is soft and gentle, with predominance of the nervous temperament, *Pulsatilla* will be advisable.

Lochia.—After delivery, the vessels of the uterus continue to pour out a small quantity of blood,—the serous, or watery parts predominating,—which gradually diminishes, until they are ultimately closed by the contractions of the uterine parietes, and become retracted within its tissue. The discharge is mingled with the mucosities which escape from the mucous lining, in the progress of its return to its ordinary dimensions. The discharges thus formed and excreted are termed the Lochia.

The character of this discharge is, in some measure, an index of the healthy or unhealthy condition of the uterus, and may be either more or less abundant than is natural, or may be altered in quality.

The quantity varies in different women, and must therefore be considered relatively, and estimated in connection with the general state of the patient. The same amount of discharge which, occurring in a full, plethoric woman, would be consistent with a healthy recovery, in a pale and delicate, or weak and nervous individual, would be attended with dangerous consequences. In general, the Lochia go on diminishing, with an occasional aggravation, until the third week, when they cease; or else they intermit until the period for the return of the menses, and then stop. After the first week the color changes to a dark or greenish hue, and is more watery, from which the discharge, at that time, has been called the *green waters*. Occasionally, the smell is fetid; but this usually depends upon inflammatory or some other derangement of the uterus.

Suppression of the Lochia.—A sudden diminution or suppression of the Lochia is ordinarily the symptom of some other disorder; therefore, when such a circumstance occurs, the attention of the accoucheur should immediately be directed to the state of the uterus. But sometimes it may happen as the effect of a moral cause, or in consequence of a chill—the first impression of which has been upon the still open orifices of the vessels of the uterus. In this case, if the discharge be not restored by the appropriate remedy, the altered function becomes a source of disease in the organ, and of general reaction in the system.

THERAPEUTICS:

Aconitè is entitled to a preference, when the suppression has occurred at a period soon after delivery, and the discharges still contain blood, and when the patient experiences pains in the abdomen, with anxiety, and a disposition to vascular congestion in the chest, or head.

This is also the remedy if the suppression or diminution has been produced by a chill,—when fever, heat of the face, quickened pulse, etc., prevail.

Chamomilla is to be preferred if there be diarrhœa, colicy pains, nervous distress of the head and teeth, with febrile heat, etc.

Coffea, Nux Vomica, Dulcamara, Bryonia, Pulsatilla, Calcarea, Rhus tox., or *Platina*, may also be indicated by the supervention of symptoms characteristic of one or more of these medicines. In addition to the remedies, there may be applied over the uterine region, a hot flax-seed or hop poultice,

Augmentation of the Lochia.—This may take place either by a flow of pure blood, or by an increase of the mucous or watery discharge. It differs, also, in relation to the intermediate or more remote pre-occurrence of parturition; and it may depend upon moral or accidental causes, such as excited or disturbed emotions; a chill; imprudence in getting up to walk too soon; abuse of stimulants; hot drinks; overheating of the body by clothing; or keeping the temperature of the room too high, etc.

THERAPEUTICS:

Calcarea Carb. is indicated, when the discharge continues long, without being profuse, and weakens the patient by its duration, producing derangement of the digestive functions.

When the discharge is mucous, watery, and abundant, and is attended with abdominal sufferings, such as distention from wind, pains, difficult digestion, disposition to diarrhœa, diminution of milk, etc.

Pulsatilla will often be indicated, when the discharge is thick and mucous, and is attended with pains in the loins, and a sad and plaintive humor.

Sepia bears some analogies to *Pulsatilla* in these cases, and may be given, if the last-named medicine does not suffice to stop the discharge; or if it is liquid and serous; or acrid and excoriating to the genital parts; or again, if there exist any induration of the neck of the uterus, and especially if the patient be of a sad, morose, and grieving disposition.

Mercurius must be given, when the discharge is most abundant at night, and when there is a disposition to inflammation of the abdominal organs, or genital parts.

Sulphur is to be administered, if the discharge continues to enfeeble the woman, and does not yield to the other remedies, the characteristic symptoms of which, nevertheless, correspond with those of the disorder. After awaiting the action of this medicine for a few days, the former medicine may be re-employed.

Secale Cornutum is a valuable medicine, when the patient is much enfeebled by the discharge.

A nourishing diet must be prescribed in accordance with the condition of the patient, and the air of the apartment be kept as pure, and frequently changed, as possible; or if she is in a state for removal, she should be transferred to a different and healthy locality. For accessory measures see page 169.

Constipation.—Contrary to the ordinary practice of interference with the operations of nature, adopted by the old school of medicine, Homœopathy does not recognize the necessity of acting freely upon the bowels on the third day after

delivery. When the system is so remarkably susceptible to morbid impressions, and occupied in establishing a new function, which is to transfer the vascular and nervous erythism from one part of the female economy to another, where is the wisdom in disturbing the whole organism by a forcible interruption of the process, which in some constitutions nature has scarcely power to effect? At such a moment the most passive condition of the system is that which every good physician should study to secure, and not by the administration of active purgatives to set up new and morbid actions, the issue of which no one can foresee. This unphilosophical practice, adopted from age to age by the intelligent physicians of the old school, fully accounts for the direful consequences which so frequently invade the puerperal state, particularly in delicate and sensitive women. It is for this reason that we so entirely condemn it, and hope to see it abolished in the practice of the accoucheur.

If any tension of the abdomen should exist, a simple injection may be given after five days; but this is not necessary; for, if we recollect, that for several days the patient has, perhaps, not taken solid food, the intestinal tube has not received the usual amount of stimulus by which its coats are excited to contract upon and propel the contents, and so keep up its vermicular or downward action. It is for this reason that I do not hesitate to advise, albeit with all due caution in regard to the state of the individual, solid but plain and unstimulating food, especially fruits, as stewed prunes, baked apples, etc., after the third or fourth day, without waiting for the occurence of alvine evacuations, because the pressure of solid matter will be more likely to facilitate this object in a natural manner, than a persistence in liquids.

But, if it seem desirable to aid the operations of nature, by exciting reaction in the alimentary canal, the following should be prescribed:

Nux Vomica.—If there is a desire to go to stool without the power of relieving herself, as if hindered by an obstruction in the rectum; if there be hemorrhoidal swellings, or a tumid abdomen, with loss of appetite.

Opium.—If a heavy weight or pressure is felt at the anus, without a strong inclination to evacuate, accompanied by heaviness of the head, etc.

Sulphur should be given if the patient suffers from habitual constipation, and especially after *Nux Vomica*, if the latter has not produced the effect.

Diarrhœa.—One would think, from the evil habit of giving purgatives soon after delivery, that a diarrhœa was desirable, or was the curative process of nature; but, on the contrary, it is an evil of no small magnitude; when it occurs, its effect is to derange the uterine and lacteal secretions; its immediate correction is, therefore, most important. The first step should be to ascertain the cause.

Pulsatilla will be indicated, if it has arisen from some error of diet.

Antimonium c., if it be accompanied by marked gastric symptoms, such as a clammy or bitter state of the mouth, a white coated tongue, or thick fur, nausea, heavings, etc.

Rheum, if the evacuations are liquid, and resemble boiled eggs mixed up, with colicy pains.

Dulcamara, if it was produced by taking cold.

Hyoscyamus, when the evacuations are watery, and inodorous or mucous, and the patient very much enfeebled.

Phosphoric Acid will be useful when there is tenesmus after the evacuations, which are slimy, and of a whitish-grey color; or when they are involuntary, painless, and pap-like, or if attended with protrusion of the hemorrhoidal tumors, etc.

Secretion of Milk.—The breasts augment in hardness and volume during the early period of pregnancy, in correspondence with the changes going on in the womb, and secrete a serous fluid preparatory to the secretion of the milk, which is to follow in due season. Care should be taken to avoid all compression of these organs, especially of the nipples, that they may be duly developed, for the greater facility of being seized by the infant. If, notwithstanding these precautions, the nipples do not expand after delivery, it will be proper to have recourse to a shield, until by the practice of the infant, and the elonga-

tion of the nipple, the difficulty is overcome. Shortly after delivery, generally within twenty-four hours, a pricking sensation is felt in the breasts, which gradually swell and harden during the next day or two, until they occupy almost the whole anterior part of the chest, and feel very weighty to the mother. Sometimes this is accompanied by a rigor, and a slight febrile action in the system, which is called *milk-fever.* When more disturbance than ordinary is produced in the system by the establishment of this function, the patient experiences, on the second or third day, headache, pains in the loins, chills alternating with heat, succeeded by burning heat, and redness of the face, sense of fulness in the forehead, thirst; there is a full and firm pulse, white tongue, and diminution of the lochia. This febrile movement not being accompanied by pain or tenderness in the region of the womb, will distinguish it from puerperal peritonitis. Within twelve hours after the commencement of this fever, if not aggravated by any imprudent exposure, the skin usually gives way, a general perspiration breaks out, the breasts subside, the milk finds vent at the nipples, the lochia flows as usual, and the system is restored to its natural condition.

Generally, it is not requisite to administer any medicine for these symptoms; all that is necessary is to supply the woman with some warm, simple drinks, and to protect her from the chance of a chill, or of any mental excitement.

The child should be applied to the breast early, as a general rule, twelve hours after delivery, which is the best means of preventing or speedily terminating this fever; because, as soon as the current of the secretion of milk is fully established, the system is relieved and the symptoms subside.

With women who do not intend to nurse their offspring, the fever is more violent and lasting, and in this case requires further attention.

THERAPEUTICS:

Aconite, when the pulse is strong and full, with a violent headache.

Bryonia, if the too great a flow of milk, produces, by an excessive enlargement of the breasts, a sensation of oppression upon the chest.

Belladonna, if accompanied with cerebral congestion.

If the milk continues to accumulate in the breasts, it may become the cause of engorgement of the mammary gland, or even of abscess. The duty of the accoucheur is to diminish the morbid afflux, by enjoining low diet, during the necessary time, and by tepid drink, so as to promote the action of the skin and kidneys.

Women who have lost their infants, or who from any cause are prevented from nursing, are apt to suffer much inconvenience from accumulation of milk in the breasts.

In such cases the breasts should be rubbed with warm oil, or covered with soap plasters spread on leather. If they are much distended, they should be rubbed with Belladonna ointment, and a little milk should be drawn off by means of a syringe or breast-pump, taking care to abstract only just so much as is necessary to relieve tension.

Belladonna appears almost to have a specific effect in checking the secretion of milk, and relieving tension of the breast. The extract of Belladonna should be mixed with an equal quantity of glycerine, and applied in a circle around the areola every night. A piece of Belladonna plaster, large enough to cover the entire breast, cut in the shape of a maltese cross, with a hole in the centre for the nipple, may also be applied.

The breasts should never be completely emptied of milk, as this would only stimulate them to increased secretion.

Tea should be avoided, and coffee should be used. The former increases the lacteal secretion, while the latter very decidedly suppresses it.

When the milk delays in appearing at the proper time, the breasts remaining soft and pendulous, it sometimes depends upon diminished sustenance during a protracted labor, in which case a proper supply of aliment will remedy the deficiency; but the more general cause would seem to be a lymphatic constitution, a feebleness of arterial action, or of the vital energies; or a

general constitutional debility produced by moral causes, by the depressing passions, or by an unhealthy pregnancy. In these cases, the most useful remedy is *Agnus Cactus.*

It is equally useful, when in the course of nursing, the milk diminishes or disappears without any appreciable cause, or becomes impoverished; but if the cause is recognized, the remedy should be given in respect of it; if it has been caused by a fit of anger, *Chamomilla;* if by grief, *Ignatia;* if by jealousy, *Hyoscyamus, or Phosphoric Acid;* if it was the effect of a chill or of taking cold, *Dulcamara.*

Pulsatilla and *Calcarea*, by the alternative effect which they possess in common with some other homœopathic remedies, often succeed in the case of disorders opposed to their primary action. In this way they have been found successful in diminution or suppression of the milk.

Castor Oil, in small doses, say half a teaspoonful night and morning, will also assist very much in increasing the flow of milk. A poultice of the castor oil plant leaves, applied to the breasts, is highly recommended for the same purpose.

Dr. Kallenbach, of Berlin, having remarked, in some observations in an allopathic journal, that when *Assafœtida* plasters had been applied to the epigastrium of hysteric females for a long time, they were sometimes followed by swelling of the breasts, which oozed out a milky fluid, thought that the same substance might be employed with advantage against suppression of the milk of nurses.

"I have tried this remedy with decided results, and found it materially increase the flow of milk, improve its quality, and cause the child, which before was pining and constantly disturbed by flatulent colics, to thrive and cease crying.

But the milk may be poor and serous, altered in its quality rather than its quantity, and unfit for the proper nourishment of the infant, and may even be rejected by it."

MILIARY FEVER.—This sometimes occurs in the puerperal state in delicate individuals, in consequence of too much clothing, or too high a temperature of air of the apartment. It also accompanies other puerperal diseases, when excessive perspira-

or it may not have been tried; and then, as soon as the child is applied to the breast it causes great pain; inflammation follows, and a crack, or fissure in the nipple is the consequence. From the moment this happens the patient's miseries begin; every time the child is applied, the wound is opened and bleeds; the inflammation increases, the nipple swells and becomes painful, even when the child is not drawing upon it; but the pain becomes intolerable when the child nurses; and thus a very slight inflammation in the beginning may soon become so severe and obstinate as to require weeks before it is subdued.

THERAPEUTICS:

Arnica, when the nipples feel sore as if bruised.

Calcarea Carb., when an ulcer appears on the nipple discharging pus.

Croton Tiglium, nipple very sore to the touch; excruciating pain running from the nipple through to scapula of same side when the child nurses.

Graphites, soreness of the nipples with small corrosive blisters, or an ulcer that oozes a thick glutinous fluid, which forms a crust that is removed by nursing, when the same formation occurs again, and so on.

Hamamelis, sore nipples when Arnica fails (internal and external).

Lycopodium, nipples sore, fissured, or covered with scurf; the child draws so much blood from the nipple that when it vomits it seems to be vomiting blood.

Mercurius, the nipple feels very *raw* and *sore*.

Phytolacca, nipples sore and fissured, with intense suffering on putting the child to the breast; pain seems to start from the nipple, and radiate over the whole body.

Sepia, nipples crack very much across the crown in various places; cracks are very deep and sore.

Silicia, the nipple ulcerates very easily, and is very tender and sore.

Sulphur, after nursing, the nipples smart, burn and bleed; it chaps badly about the base.

Accessories.—"Nut Galls, hollowed out to fit the nipple and soaked in French brandy, worn on the nipple two months before confinement, will prevent sore nipples, also caked breast and retracted nipple. It is best to have two pairs of nut galls, and to have one pair in brandy the other pair on the breast, changing every twenty-four hours." (*Uhlemeyer.*)

A Glycerole, composed of equal parts of Glycerine and tincture Hydrastis can. used locally, is almost a specific for sore nipples.

In some severe cases sweet oil and lime water may be applied frequently; or Magnesia-ointment; or Glycerine and strong, green tea, equal parts, or Collodion; or a solution of Nitrate of Silver, in the proportion of ten grains to the ounce of water, which will form a slight eschar, leaving a sound cuticle after it falls off.

In order to prevent any trouble about the nipples they should be washed off gently with warm water, immediately after the child has nursed, dried carefully, and then dusted with superfine wheat-flour, or a fine powder of one drachm of white oxide of Zinc to one ounce of fine powdered, or sifted arrow-root.

Inflammation and Abscess of the Breasts.—Engorgement of the breasts generally appears on the fourth or fifth day after delivery, and principally affects persons who do not wish to nurse, or who do not apply the child to the breast at least every four hours, both by night and day, or those who have too great a flow of milk and nurse a feeble child, or have their nipples too small or large, or who have taken cold. The patient has chills and pain in the back followed by fever; the breasts become hard and unequal, but preserve their natural color; but the breasts may become caked and indurated, and the secretion of milk will then be diminished or completely suspended, while the patient has pains in the whole of the breast, which may even extend to the arm pits.

When *inflammation* has set in, the breasts gradually increase in size, and become very painful and hard; they are excessively hot and tense, and assume a reddish color; the pains lancinat-

ing and pricking; fever sets in, with headache, which increases more and more; the face is flushed, urine scanty with a whitish sediment; the fæces exhale an acid odor; and lastly the inflamed breast acquires considerable size and hardness, which may extend to the arm-pits and neck. The pains may become so acute that delirium sets in.

Simple engorgement generally terminates by resolution; while suppuration is the most common termination of the really inflammatory variety. We ascertain that suppuration is taking place by the persistence and progressive increase of the inflammatory symptoms, and by the presence of hard lumps or cakes in the breasts, together with throbbing pains and intolerable shootings. Finally, fluctuation is discovered.

Treatment.—The preventive treatment consists in applying the infant early to the breasts in order to empty them as soon as they are filled, sponging the breasts from base to nipple with a soft sponge dipped in camphorated oil, or by applying in the same manner, a glycerole, composed of equal parts Glycerine and tincture of Iodine; in keeping the breasts and person of the patient warm; and by moderate diet.

When engorgement has once set in, a flaxed poultice, containing a little milk, castile-soap, or ten or twelve grains of Soda, or Potash, may be applied; or Hydridate of Potash-ointment, one drachm to the ounce of simple cerate; or bits of Canton-flannel dipped in hot Pearlash-water, not too strong.

THERAPEUTICS:

Belladonna, when the breasts feel heavy, are very hard, and the redness runs in radii, accompanied with pulsating pains, high fever, headache over the eyes, constipation and scanty urine.

Bryonia, stone-like hardness of the breasts, which are hot, painful, but not very red; great stitching pains in the breast, worse from the slightest motion.

Graphites, in cases where there are so many old cicatrices from former ulcerations, that the milk can scarcely flow.

Hepar Sulph., when suppuration seems inevitable.

Lachesis, where the breast has a bluish or purplish appearance; lancinating pains in the mammæ, pains down the arms.

Mercurius, especially if transient chills or throbbing indicate the probable formation of matter; also in cases where suppuration takes place in different parts of the breast.

Phosphor., phlegmonous inflammation, breast swollen; red in spots or streaks; hard knots in different places, with fistulous openings, with burning, stinging and watery, offensive discharge.

Phytolacca, "gathered breasts," with large fistulous, gaping and angry ulcers, discharging a watery fetid pus. In ordinary caked breasts, it is called specific.

Silicea, in cases where Phosphor. is not sufficient to heal the fistulous opening, with callous edges, or to disperse the hard lumps in the breast; or where the discharge is serous.

Sulphur, suppuration of the mammæ, with chilliness in the forenoon, heat in the afternoon.

Accessory Means.—Two or three hours after labor, sooner if there is much hemorrhage, the infant should be applied to the breasts, but only about once in every four hours, until the supply of milk is uniformly secreted. The breasts should be supported by a broad handkerchief, or a net-work supporter, or by strips of adhesive plaster, nicely and uniformly applied, as their weight aggravates the patient's sufferings greatly; strips of plaster are also used to effect uniform compression of the glands, and thereby diminish their secretion. A linseed poultice should be applied to the part; this will allay the pain, by relieving tension and causing perspiration. The use of *Camphorated Oil*, followed by dry heat, as of an iron passed close to the breast, and then enveloping the breast in cotton-wool. Dr. Holcombe has most confidence in a plaster made of equal parts of extract of *Belladonna* and compound *Iodine Ointment*, into which a few grains *Gum Camphor* have been rubbed. This should be worn continuously and renewed every twelve hours as long as necessary. A solution of *Camphor* and *Glycerine*, applied over the gland by means of a flannel compress, is also a useful application.

If the abscess be small, it may be allowed to open of itself; but if the engorgement and induration is extensive an opening should be made as soon as fluctuation is discovered; the incision

should be made in the direction of one of the radia of a circle, of which the nipple is the centre; a bit of lint or linen, saturated with carbolized oil or glycerine, may be introduced into the opening to prevent its closing too soon; the fears of some homœopathic physicians about lancing abscesses are founded upon ignorance and prejudice. If the matter be not evacuated as soon as it can be felt, it will be diffused in various directions through the breast.

It is important to remember that Mammary Abscess is a symptom which strongly points to *constitutional feebleness*, indicating the necessity for pure air, sunlight, suitable bathing, and nourishing diet,—lightly dressed eggs, tender lean meat, oatmeal, and *brown bread*. By eating the latter, the patient has the advantage of the *Phosphorus* which is contained in the covering of the grain, but much of which is lost by the dressings which fine flour undergoes. The mind must be kept free from domestic worry and all kinds of care.

In still-births and cases where it is necessary to get rid of the milk, attention should be directed primarily to the applicacation of perfect rest, with a certain amount of pressure. A large soft handkerchief placed round the neck and under the breast, with another reversed and passing over the breast around the body, a cotton-wool pad being interposed, will secure efficient pressure. The shoulders should be raised and the arms kept still; the upper part of the chest only lightly covered. Friction, or drawing of the breasts, should be eschewed. Extract of Belladonna may be rubbed under the arm-pits, being there absorbed into the gland of the axillia, and preventing their becoming indurated and painful; a cloth saturated with the Belladonna extract may also be layed on the breasts. (See page 398.) A moderate diet, and abstinence from fluids for a few days, combined with the above measures, may be regarded as a sure preventive of abscess.

RETENTION OF URINE.—After a severe labor, a distressing strangury sometimes occurs, in consequence of the pressure which the head of the child exerted upon the urethra and neck of the bladder, during its passage through the pelvis, producing

contusion and inflammation of the urinary passage. Although this trouble is evidently produced by a mechanical lesion, *Arnica* is, nevertheless, not the specific remedy in such cases, and the catheter should be used.

Incontinence of Urine.—The same cause that produced retention, will also produce incontinence of urine, if the labor has been protracted, or if much exertion had been made by the woman. A prolonged or violent pressure upon the neck of the bladder may produce paralysis, and render her incapable of holding the water.

Arnica will be of more benefit in this case, because, besides being adapted to the cause, it has in its pathogenesy, the involuntary discharge of urine. After Arnica, if the inconvenience has not entirely ceased, *Belladonna or Cantharides* may be employed; the doses being repeated at intervals of ten or twelve hours, if necessary.

If the disorder should become chronic, and does not yield to these two medicines, *Sulphur* or *Sepia* should be given.

Laceration of the Perineum.—Slight lacerations of the perineum require little or no treatment. It will generally be enough to keep the parts clean, to apply a compress dipped in arnica water, to direct the woman to lie on her side, and to tie the knees together. When more severe, they should be treated at once, so as to insure, if possible, union by the first intention. The edges of the wound should be brought together by three or four sutures of silver wire or silk.

The interrupted suture is the best for ordinary use, and silver wire is preferable to silk. The best form of needle is the old-fashioned semi-circular one. The needle should pass through the whole thickness of the perineum, and should pierce the skin at a distance of at least a quarter of an inch from the edges of the wound. The sutures may be removed at the end of a week.

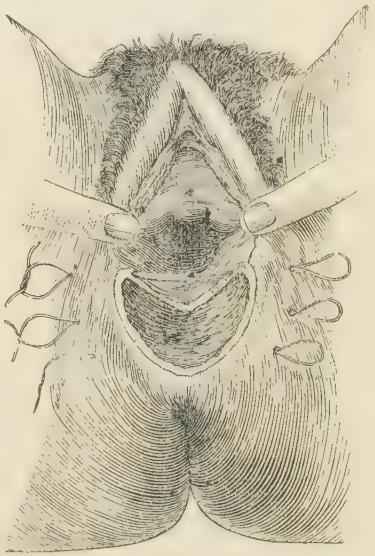
Should the lacerated perineum not unite by the first intention, a surgical operation will, in all probability, be ultimately required to effect reunion. Most of the surgical operations for the cure of lacerated perineum, consist in paring the edges of

the wound, and bringing them together by sutures of various kinds.

Thomas describes the operation as follows: "Let the operator keep clearly in mind the shape and dimensions of the body which he is about to restore. It is a triangle with apex above and base below. Two surfaces of this shape are to be vivified and held face to face by sutures. That is the whole operation.

First part of the operation.—All being now in readiness, the assistant's fingers are fixed upon the labia by the operator, and the degree of traction they are to practice, regulated. Seizing the mucous membrane just above the upper border of the anus, at the point where it joins the skin, with the tooth-forceps or tenaculum, he now cuts a furrow directly up the vagina, extending for about an inch and a half. While this is being done, the anterior vaginal wall may be lifted, and the posterior wall exposed by the introduction of Sims' speculum under the symphysis pubis. The furrow thus cut, marks the extent of the base of the perineal body and the point of junction of the bases of the two triangular vivifications now to be made, one on the right and the other on the left. Now seizing the mucous membrane on one labium, a little below the level of the meatus urinarius, two other furrows are cut from this point, one extending to the upper, the other to the lower extremity of the first or basic furrow. A little undenuded triangle, which will be left in the midst of this one, should now be vivified. The same thing is done on the opposite side, and then this part of the operation is complete.

Fig. 55.



Surface denuded in perineal rupture, and the sutures in position.

The operator now stops and carefully examines to see if any arteries are spouting, and if any undenuded surfaces still remain. If he find the former, he twists them, and, if necessary, ties them with very delicate silk ligatures, which he cuts short; if the latter, he catches them with the tenaculum, and with the bistoury cuts them away.

The first step of the operation is now finished. The operator should not hasten to the second, for the tissues should be exposed for a while that he may be assured against hemorrhage. Sutures should never be applied until all hemorrhage has been checked. The wound made is shown in Fig. 55.

Second part of the Operation.—Now taking in the needle-holder, a round, curved needle, about two and five-eighths inches long, which will cause less hemorrhage than the needle with cutting edges, armed with a doubled silk thread, giving a loop about eight or ten inches long; he inserts it opposite the lowest external angle of the vivified triangle, (which would be a little above the level of the anus,) and makes it pass across the middle of the united bases of the triangles, over the rectum, and emerge at a corresponding point on the opposite side. This suture is nowhere visible within the vagina, for it lies embedded in the tissues lying over the rectum. It may be passed by one sweep, or, if this prove difficult, may be drawn out at the middle of its course, and reinserted through the same hole. The suture with the needle attached is left in position, and another being taken, it is inserted above the first, and made to pass through the tissues at the extreme upper angle of the vivified surface. Guided by the finger in the rectum, it is kept embedded in the recto-vaginal septum, and emerges at a point on the other side corresponding to that of entrance.

This, like its predecessor, I am in the habit of concealing in the tissues, so that after its passage it is nowhere visible within the vagina. This is not customary; most operators leave the middle portion of each suture free upon the surface. I believe that an embedded suture excites much less irritation on the denuded surface, and acts less like a seton upon it, than an exposed one.

A third needle is now inserted, but, instead of being embedded, it runs across, and is seen traversing the vaginal orifice. It is inserted above the second suture, passes into the vagina at the inner border of one triangle, and emerges at a corresponding point on the opposite one. Others are passed in the same way, until the operator feels that a sufficient number are in place.

If he intends using twisted wire sutures, they should be passed from a quarter to half an inch from the edges of the wound, and one-third of an inch apart; if the quilled suture, the wires should be inserted three-quarters of an inch from the vivified border, and only three or four sutures are necessary.

Fig. 56.

Quill Sutures in place.

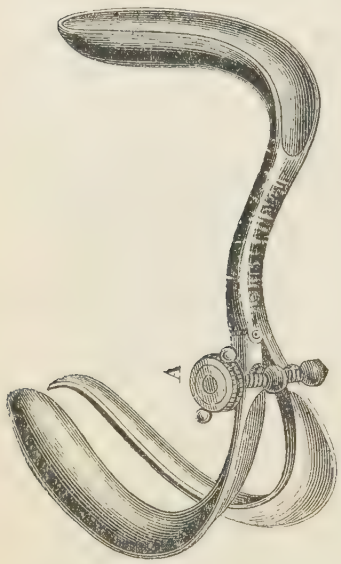
In any case the sutures originally passed should be temporary ones, only intended as means for drawing into place stronger, permanent ones of silver. If the ordinary quill suture is to be employed, pieces of gum-elastic catheter, cane or bougie, or rods of hard rubber are inclosed in the looped extremity of the sutures the opposing surfaces are approximated by pressure, the opposite quill is put into position, and the sutures are tied over it.

Vesico-vaginal Fistula is an opening or communication between the bladder and vagina, a case by no means rare, but extremely distressing, seldom cured, and often given up as hopeless; it is more frequent than the recto-vaginal, more refractory, and more frequently follows as a consequence of labor.

It may be caused by instrumental delivery, long-retained, old-fashioned pessaries; delay in delivery, long pressure of the head; retention of urine; ulceration; cancer; sometimes it is an extension of rupture of the uterus; or the result of abscess, as stated by Professor Simpson.

The situation of the rent or perforation is of considerable consequence in reference to treatment, whether at the junction of the urethra and bladder, in the neck, or in the posterior wall.

Fig. 57.



Sims' Speculum with Dawson's dilating improvement.

A simple rent has a better prospect of cure than a circular opening, however small; but the worst cases are where there is considerable loss of substance.

Symptoms.—Inability to retain urine; dreadfully offensive smell; excoriations; if the rent is near the neck of the bladder, the escape of urine is constant; to make the diagnosis sure, pass the catheter, and trace the urethra with finger in the vagina, which will, with the Sims' speculum, Fig. 57, show the extent of injury, and its condition.

The only means of curing this distressing difficulty, is by means of an operation, which may be divided into three parts:

First.—Paring the edges of the fistula.

Second.—Passing sutures through them.

Third.—Approximating them and securing the sutures.

The patient, being placed upon a table two and a half by four feet, which is covered by folded blankets, is brought under the influence of an anæsthetic, and placed in the following position: she is made to lie on the left side, with the thighs bent at about right angles with the pelvis, the right a little more flexed than the left. The left arm is placed behind her back, and the chest brought flat down upon the table, so that the sternum may touch it. The assistant, who is to hold the speculum, (the Sims' speculum, as shown in the cut, is the one used,) which is then introduced, does so with the right hand, while

with the left hand he elevates the right side of the nates. The table should be so arranged that a bright and steady light may fall into the vagina, which being then fully distended, will be seen throughout its extent, except where it is obscured by the speculum. A staff or sound should also be introduced into the urethra, which will aid very materially in keeping the parts steady, and guide the operator in his incissions.

Paring the Edges of the Fistula.—The edge of the Fistula, at the point which is deemed most difficult of access and manipulation, is caught by the tenaculum, or tooth forceps, and held up. Then with a pair of long-handled scissors, or a knife, a strip is cut, extending from the mucous membrane of the bladder to that of the vagina, care being taken not to wound the former.

Another portion of the edge is then seized, and removed like the first. The wound thus left should be one bevelled from the vesical surface outwards, and great care should be observed to remove the entire border, for upon this, success depends.

It is of great moment that sufficient tissue should be removed, and that the amount taken on the vaginal surface should be greater than that near the vesical. Prof. Simpson makes this point very clear by the following language: "Enter the point of your knife into the vaginal mucous membrane at some distance from the fistula; then transfix with your knife the edge of the fistula to the extent you intend to remove it, and bringing it out at the vesical border, carry it right and left fairly round the opening, so as, if possible, to bring out a complete circle of tissue.

The abraded surface, from the edge of the fistula to the point of vaginal section, should measure at least four lines, one-third of an inch, while above, it should just touch the vesical border, not invading its mucous membrane. During this part of the operation the sponges, held in long-handled sponge-holders, will have to be freely resorted to, but the bleeding generally soon ceases, and the operator may proceed to the second step.

Passing the Sutures.—The sutures are passed by means of slightly curved needles held in a pair of strong forceps, Fig. 58,

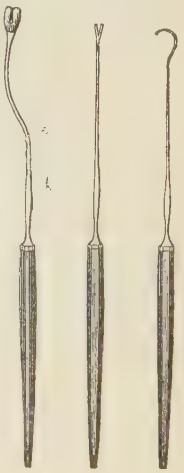
made for the purpose. In some cases the metallic thread, made of annealed silver, which is employed, may be passed at once, but usually silk threads are first passed, and the silver sutures are attached and drawn through. The needle, held in the grasp of the needle-holder, should be passed at the angle of the wound which is most difficult of access, half an inch from the edge of the incision, and brought out at the vesical surface, but not involving its mucous lining.

Fig. 58.

Sims' Needle Holder.

The point of the needle having passed out, it is engaged by the small, blunt hook, Fig. 61, until it can be seized and drawn through by the needle forceps. Then it is plunged into the other lip and drawn out half an inch from the edge of the incision. The ends of the silk suture are then given into the charge of the assistant holding the speculum, and another is passed in the same way at the distance of one-sixth of an inch from the first. In this way a sufficient number are passed to close the fistula.

59. 60. 61.

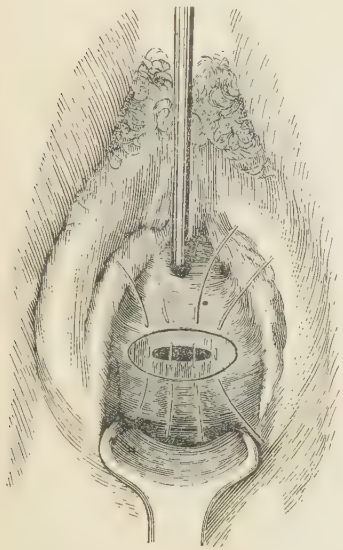


During this procedure the edge of the fistula is to be fixed by the tenaculum, and should firm, opposing force be needed to make the needles pass, it may be given by that instrument.

When the needle is seized by the forceps and pulled so as to make the thread follow it, some opposing force is needed, or the thread might cut through the tissues. This force is offered in the species of fork represented in Fig. 60, which is put as a fulcrum under the thread at its point of exit, and made to sustain and draw it through.

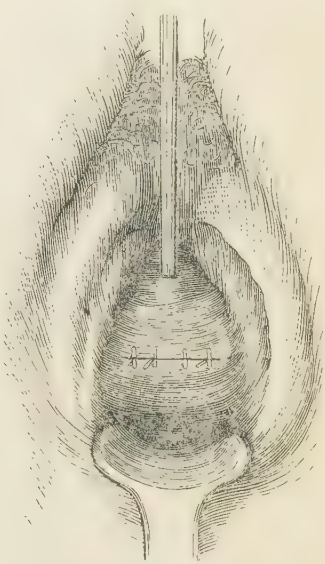
A bit of silver wire about twelve inches long is attached, by bending its extremity, to the first silk suture, and by the use

Fig. 62.



Shows the edges of the fistula pared and the sutures in position.

Fig. 63.



Shows the fistula closed with the wire suture.

of the fork just mentioned, the silk thread is drawn through so as to make the wire replace it. The silk is then cut off, the silver suture put aside, and the operator proceeds to replace each silk thread in the same way. This being accomplished, the instruments are then changed in order to effect the twisting of the sutures.

The ends of the silver sutures being drawn together by the fingers, and the edges of the wound carefully approximated, each thread is slightly twisted so as to keep the whole in apposition. Then the ends of the first suture are seized in the bite of the forceps, slipped into the fulcrum, Fig. 59, and torsion is made so as to close the wound completely at this point. In this way the sutures are, one after the other, twisted, care being taken not to carry the torsion so far as to strangulate the tissues engaged in the constricting loop. Each suture is then clipped by a pair of scissors, about half an inch from

the edge of the fistula, and by means of forceps pressed flat against the vaginal wall so as not to wound the opposite surface.

Fig. 64.

Sims' Sigmoid Catheter.

The bladder should then be syringed out to remove all blood which may have accumulated there; for if a large clot should be retained in this viscus, it may cause severe vesical tenesmus, and smaller ones may block up the mouth of the Sims' catheter, which is to be kept in place permanently, and call for its repeated removal.

The patient is then placed in bed by the assistants, and a Sims' sigmoid catheter is passed into the bladder and left there. The mouth of this instrument projects beyond the vulva, so that under it a small china dish may be placed, which will receive the urine as it passes through.

The nurse should examine the catheter every two or three hours to be certain of its perviousness, and to remove the urine which collects in the receptacle placed under it.

Once in every twenty-four hours the vagina should be syringed out with tepid water and arnica; but the bladder requires no further washing than that mentioned, except in cases of vesical tenesmus. The diet should be governed by the same rules which guide us in the management of patients under other surgical operations. It should be nutritious and unstimulating.

In from eight to fourteen days the sutures should be removed.

To accomplish the removal of the sutures, the twisted end of one of them should be seized by a pair of forceps and drawn upon gently, until the edge of the loop emerges from the tissues in which it has been embedded. Then the blade of a pair of scissors should be inserted into the loop and one side cut, after which a little traction will remove the suture.

An examination may then, with great caution, be instituted to ascertain whether success or failure has attended the opera-

tion. A visual examination will generally determine this. Should there be any doubt, the bladder may be filled very cautiously with tepid water to settle the question as to the entire closure of the fistula. Sometimes one operation fails to cure, although it diminishes the size of the fistula very much, and subsequent operations must be resorted to. It may be necessary to repeat these very frequently before success is attained.

The operation of Dr. Sims has been variously altered in all its steps, so that now the number of modifications is quite great, so great, indeed, that it would be out of the province of a work like this to mention them in detail. In his earlier operations Dr. Sims employed the quill suture, which he called the clamp suture, but a tendency on the part of the little metallic bars, which he used in place of quills, to produce ulceration, induced him to resort to the interrupted suture.

Prolapsus Uteri.—This is an accident of not unfrequent occurrence after labor. Often resulting from rising too early after confinement, want of proper bandaging, violent efforts of straining and vomiting, even sneezing or purging. It varies in degree, from partial descent to complete procidentia. The causes are: relaxed fibre, particularly of the ligaments and vaginal coats; multiparæ are most subject to it, and after tedious or instrumental labors; and the poor are more subject to this accident than the rich.

It is recognized by a sense of weight and uneasy pressure in the pelvis, fulness in the vagina, increased by the standing position, dragging pains in the loins, sense of aching in the iliac regions, increased lochial discharges, vesical and rectal uneasiness with tenesmus, and on examination by touch, the uterus is felt to be lower than usual, the os resting against the rectum, or upon the perineum, or reaching down to the outlet, obstructing the passage of the finger at once. In the less severe form of simple relaxation, the uterus may not have lost its central position; but when it has descended so as to rest on the rectum or perineum, it, of course, has ceased to project in the centre of the pelvic cavity, and the os is found more posteriorly placed than is natural; on the other hand, in complete prolapsus, the

os is carried down in the direction of the axis of the outlet, or forwards. Examination should be made in the upright posture, to give a correct idea of the extent of the prolapse. The vagina is more or less relaxed, and inverted.

In procidentia, the uterus is projected externally, with the vagina completely inverted, and forming a tumor between the thighs. The intestines or bladder may be carried down at the same time, and form part of the tumor, giving it a sensation of elasticity. The procidentia is accompanied by the ordinary local symptoms of prolapsus uteri, and also with difficulty in voiding or retaining the urine, tenesmus, and pain in the tumor. After a long continuance of the extrusion, the lining membrane of the vagina becomes hard and dry, like the common integuments, ceasing to secrete; I saw one case that had existed so long that the uterus had, from long exposure become atrophied, and assumed the appearance, to a certain extent, of the male organ, leading the parents of the young woman to suppose that she was an Hermaphrodite; ulcerations are not unfrequent in this state, the existense of which causes great pain in sitting down, from the contact to which the surface is then subjected.

Treatment.—The first step is to replace the uterus *in situ*, which should be done in the recumbent posture, with the hips elevated, and the thighs bent upon the pelvis, by gentle pressure of the thumb and fingers at the upper part, while the body of the tumor is gradually urged upwards in the palm of the hand: this is generally effected with tolerable ease, although sometimes the return is prevented by the great swelling, or from the presence of inflammation in the organ. If this should be the case, it will be better to wait until, by the exhibition of suitable remedies, this condition shall be relieved. If the displacement be in the earlier stages, the uterus may be elevated by the pressure of two fingers upwards, and a small piece of sponge immediately applied to support it, which may be left in at first for twenty-four hours at a time, or longer, if it does not excite irritation.

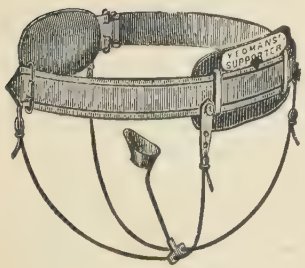
It is never advisable to use pessaries, if they can by any means be avoided; but when the case assumes a chronic form,

and has been long without any improvement by the usual treatment, pessaries must of necessity be resorted to. When the practitioner reflects on the rude, I may say truly barbarous, principles of the old-fashioned pessaries, I do not wonder at the general antipathy of the profession to their use.

It is well known the vagina is a passage of a certain capacity, with the uterus at one end, and the vulva at the other, and may be characterised by the two equidistant lines.

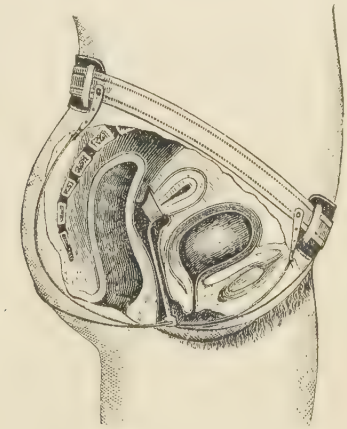
Now so long as the uterus and vagina continue in a normal or healthy state, so long the walls of the vagina, the uterus, and vulva, preserve their normal and respective distances; but if by morbid changes these parts become relaxed, their proper position is lost, and great inconvenience arises. To remedy this, the old tribe of pessaries, balls, inflated bags, rings, etc., are introduced, with a view of keeping the uterus and vulva at the required distance; and how do they accomplish this object? *by substituting a greater evil than the one sought to be remedied, by putting the vaginal walls still more on the stretch;* and when removed, as they of necessity sometimes must be, the uterus

Fig. 65.



Yeoman's combination supporter and pessary.

Fig. 66.



Yeoman's combination supporter and pessary applied.

falls down still lower, and puts the patient in a worse condition than before. Now it must be evident that a worse contrivance,

or one more unfitted to suit the object, could scarcely be invented; and it would be far better never to use any pessary at all. The only legitimate support to the uterus, when prolapsed, is that which, whilst securing the support necessary, allows the vagina to contract to its normal dimensions; which it would be impossible to do by any of the old tribe of pessaries.

The stem pessary as usually made, is also objectionable, by reason of its rigidity, which renders it uncomfortable. This difficulty is, however, I am happy to say, done away with by the invention of Yeoman's combination supporter, the elastic cords by which it is held in position, allowing all the natural changes in position of the organ, without distending the vagina. For therapeutics of uterine displacements see page 129.

CHAPTER II.

THE PUERPERAL STATE.

POST PARTUM HEMORRHAGE.—The flow of blood which usually accompanies the separation of the placenta may be so excessive as to produce marked constitutional symptoms. It is then called post partum hemorrhage, because it follows the birth of the child. The hemorrhage is always occasioned by uterine inertia.

The uterus will be felt to be in a relaxed and flabby condition, so that you can scarcely define its limits; or, if it contract and harden for a few seconds, it will speedily return to its former state.

In all cases where there is any reason to apprehend hemorrhage, the pulse should be frequently felt, and the uterus examined. The patient should be asked whether she feels any discharge running from her; and the napkin should be frequently removed and inspected.

There is to the practitioner of obstetrics, perhaps, in the whole list of accidents that are liable to occur to the lying-in woman, nothing more appalling than those terrible cases of flooding after labor, in which the woman's life is quietly, speedily and surely ebbing away, as is indicated by the deathly pallor, the cold, hurried breath, the clammy, waxen skin; the intermittent and sometimes absent pulse, and the rapidly recurring or continuous fits of fainting, from which she only recovers long enough to make a few gasps, utter a short, feeble, hardly audible sentence, and again lapses into a swoon that not unfrequently, alas! closes the scene of her earthly career.

It is in such cases that all see the necessity of a clear-witted, cool headed medical attendant, who has at his command, and possesses the courage to apply without delay, all or any means that may be brought to bear in benefiting or saving his patient.

Since the internal remedies that are indicated in hemorrhage are given on pages 167, 168, 169, 170 and 171, and as I am speaking only of those dangerous cases in which there is usually no time to be frittered away in waiting for the action of internal medicines, I shall only, with the exception of Ergot, notice the local expedients for arresting hemorrhage.

Ergot.—It is claimed, and not without some show of reason, that by virtue of its well known action in producing active uterine contractions, that this drug will arrest post partum hemorrhages; but so far as my experience goes, (and I have formerly employed it in numerous cases,) it is much overrated. In the first place, it is often, owing to the weakened condition of the system and the irritability of the stomach, impossible to have it retained, and the nausea and vomiting, which frequently are present, are much aggravated, and if absent are produced by it, thereby tending to further relax the whole muscular system, thus increasing rather than diminishing the hemorrhage. Even should it be retained without producing the results enumerated, and a pure, fresh article of the drug, which is very difficult to obtain, be at hand, the action is uncertain, and not at all prompt enough to come up to the requirements demanded.

Cold.—Perhaps the most available, and often, if not in the majority of instances, the best of all expedients, is the application of cold water or ice; this may be done either by applying on the abdomen over the region of the uterus, cloths dipped in cold water, wrung out to prevent wetting the bed and clothing too much, and changing them frequently, or as often as they become warm enough to incite only partial contractions, or by immersing the hands in cold water, and grasping or kneading the womb with them while cold; also, by injecting cold water into the uterine cavity. Ice may be crushed and placed between the layers of oiled silk, or in a bladder, and if neither be conveniently at hand, between folded napkins or towels, and placed over the uterus on the abdomen; it may also be inserted into the cavity of the uterus in small lumps, first however, carefully removing all sharp edges or corners that may protrude sufficient to do any injury.*

* The Ether Spray over the abdomen, spine and genitals will often arrest the flow, where other means have failed.

Tamponment.—It is much to be regretted that men at the present day, some even of high standing in the medical profession, still practice and laud the abominable practice of plugging up the vagina with strips of linen or muslin, previously greased or saturated with some one of the numerous astringents, as a means of arresting post partum hemorrhage. The application of a tampon is very tedious and disagreeable to both the woman and the accoucheur, and its results are well known to be in a very great measure unsatisfactorily, because the bleeding can still go on into the cavity of the relaxed womb, distending it, and also the orifices of the already open vessels, thus making room for more blood, until the entire system is exhausted and the patient succumbs.

Electricity.—Owing to the facility with which we can excite muscular contractions by the means of galvanism, I have no doubt but that we may, especially in those passive, long continued cases of flowing, find the electric-battery very useful; although I have never made use of this means, I am well aware that others have employed it very successfully in hemorrhages, which nothing else seemed to arrest. It is recommended to be applied, one pole of the battery in the cervix-uteri, and the other by the means of a curved copper plate on the abdomen directly over the fundus.

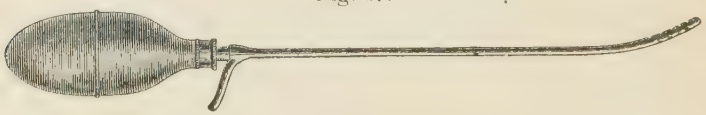
Persulphate and Per-chloride of Iron.—In the March No. of the *American Observer* of 1875, was published an article by Dr. Williams taken from the "British Obstetrical Journal," on Per-chloride of Iron in the treatment of post partum hemorrhages. Several cases are cited, showing highly beneficial results from its use. This is a salt of iron very much prized by English and Continental surgeons for its powerful astringent and styptic properties, and was, I believe, first employed in post partum hemorrhage by the eminent obstetrician Dr. Barnes, who still employs it in these cases with splendid results. It is, however, a *preparation of iron*, seldom used by American practitioners as a styptic, for the simple reason that we possess, and use almost exclusively, Monzell's salts or the *Persulphate of iron*, which is well known and admitted to be equal or superior to the per-chloride

as an astringent or styptic, causing, perhaps, less irritation, and is less liable to occasion inflammatory results.

In those terrible cases of hemorrhage where other means fail to promptly arrest the flow, I have no hesitancy in saying, that we should employ without delay, a strong solution of the per-sulphate of iron, say four to six ounces to the pint of water, *injecting it into the uterus by the means of a syringe*, nor is it always advisable to wait too long before calling this means into requisition, since there is little or *no more danger of inflammation* from its use than from the introduction of ice as previously recommended.

It is argued that the coagulation resulting from an injection of the salts of iron, will form clots to such an extent as to prevent contraction; this, however, by experience is shown not to be the case, or at least the clots are very insignificant, unless the carelessness of the operator should permit him to inject the solution into a uterus that was already filled with blood, *which should never be done, as of course it would be coagulated;* always clear out the mouth of the womb by means of the hands, directly previous to injecting the solution of iron. The best instrument for injecting the womb, is Dr. Molesworth's intra uterine syringe.* Even were a clot actually formed, the hemorrhage

Fig. 67.



MOLESWORTH'S INTRA UTERINE SYRINGE.

would be arrested, by means of the clot itself acting as a natural uterine tampon. I could enumerate many cases that I have witnessed, where the hemorrhage was kept up by the removal of clots, either by an over officious medical attendant, or the woman herself constantly getting up to evacuate the bladder, or some other pretext. The per-sulphate seems to act powerfully as an astringent directly on the bleeding orifices of the vessels, closing them at once, and thus remedying an accident of the

*This instrument discharges directly forward toward the symphysis pubis, there is no danger of throwing the jet into the Fallopian tubes, and as the wash can escape as fast as thrown in, or can all be withdrawn by suction at the will of the operator, the patient is wholly freed from that excruciating pain, so frequently attending the use of other syringes. The tube being susceptible of different curvatures, this syringe can be used as well, and with equal facility for injecting the BLADDER and URETHRA, both in the Male and Female, as for the uterine cavity.

gravest character, and one heretofore deplored and dreaded by all.*

PUERPERAL PERITONITIS.—There are two forms of peritoneal inflammation to which women are liable in the puerperal state, the ordinary, and the epidemic.

The distinction is important, inasmuch as the former is an example of common inflammation occurring at a period when the nervous system is abnormally irritable, and readily exhausted, while the latter has a malignant character, results either from an epidemic or endemic cause, is marked by greater virulence, exercises a more depressing effect upon the vital powers, passes on to a rapid termination, and possesses a contagious or infectious character, consequently the practitioner should exercise caution, so as not to carry the germs of the disease to other lying-in patients.

Puerperal peritonitis may occur in consequence of a chill, caught during the act of parturition, or from the use of damp or wet linen, or may be occasioned by violence, exciting inflammatory action in the uterus, thence extending along the Fallopian tubes, to their fimbriated extremities, the only point at which the mucous and serous surfaces come in contact, and so by contiguity, to the peritoneum. Or, the attack may be primary, from some of the above causes. Previous indisposition is not an unlikely cause. From the first shock of delivery, the pulse may be quick, and pain be felt in different parts of the abdomen, with some degree of tenderness and tension; nausea or vomiting being complained of; and a distinct rigor, or chills, followed by burning heat. There is usually a jaundiced appearance of the conjunctivæ, which may extend over the face, or even the whole surface of the body. The pulse increases in rapidity, is wiry and small; the pain extends all over the abdomen, but is sometimes circumscribed, and shoots into the hips or thighs; it becomes intense, of a burning acute character; the abdomen becomes swollen and tense; the tongue is white and dry, there is thirst and occasional vomitings, an irregular state of the bowels, at first costive, but afterwards relaxed or bilious. The lochia and milk are diminished or suppressed; the breasts be-

* Injections of hot water into the vagina and womb are highly recommended by Dr. Mann and others, for post partum hemorrhages.

come flaccid; and the patient is lying on her back, with her knees raised, because extension aggravates the pain.

If the uterus has been the channel through which the efficient cause acted, the attack is more insidious, and at first the abdominal pain may be mistaken for after-pain, from the remissions that occur.

The treatment of puerperal peritonitis, whether of the epidemic, malignant, or simple form, demands the closest investigation on the part of the practitioner. The first dawn of the disease ought to be recognised, and a careful examination of the abdomen instituted, upon the least suspicion, as tenderness on pressure is the pathognomonic sign by which to distinguish peritonitis from intestinal irritation or after-pain, and the cure is more sure and easy, in proportion as the treatment is begun early. For this reason, a puerperal female should be watched during the first four or five days after delivery, as a fatal illness may possibly be averted, by an immediate arrest of the incipient symptoms of inflammation.

THERAPEUTICS:

Aconite.—Lochia suppressed, mammæ lax empty; skin hot and dry; pulse hard, frequent or contracted; eyes wild staring, glittering; tongue dry; abdomen inflated sensitive.

Arnica.—This remedy should always be given a couple of days before confinement, or immediately after, to prevent child-bed fever. It is highly recommended for this disease by B. E. Ehrman of Cincinnati, Ohio, for child-bed fever, and especially for tympanitic distension of the abdomen, vide U. S. M. J. of May 15, 1877, Vol. V, No. 10, page 491.

Arsen.—When there is anguish, sudden prostration, sunken countenance, sallow or livid complexion, extreme restlessness, and want of sleep, burning pains in the abdomen; burning heat and thirst, with dry, parched lips, vesicles on the lips and in the mouth, nausea or vomiting, oppression of the chest, giddiness, headache, delirium, small, feeble and intermittent pulse.

Baptisia.—Puerperal fever, from absorption of purulent matters, or from infection with typhoid symptoms; fœtid lochia, with much prostration.

Belladonna.—Great tenderness of the abdomen, aggravated by the least jar, even of the bed; clutching pains, as if something with nails was clawing the intestines together; meteorism without eructations; great heat in the abdomen, which imparts a burning sensation to the same; suppression of the lochia, or else vitiated, fetid discharge; congestion of the head, with delirium, redness of the face, and throbbing of the carotid arteries; drowsy dozing, with startings, or drowsiness, with inability to go to sleep.

Bryonia.—Stitching, burning pains in the abdomen, which is tender to touch; lochia suppressed, with headache as if it would split open; wants to lie down perfectly still; the slightest motion causes pain; great dryness in the mouth, without thirst, or else great thirst, drinking tumbler after tumbler full; perspiration in short spells, and only on single parts of the body; constipation.

Canth.—Great heat and burning in the abdomen; debility, restlessness, and trembling of the limbs; abdomen swollen, and tympanitic above, but yields a dull sound below; constant, painful urging to urinate, passing but a few drops at a time.

Cham., if the disease was induced by a fit of anger.

Coffea.—Puerperal fever from mental excitement, frequent crawling, with feverish warmth, tongue moist, no thirst; delirious talking, eyes open and shining; violent abdominal pains, with over-sensitiveness, despair, and sleeplessness.

Hyoscyamus.—Typhoid state; either complete apathy, or else great excitability, spasms, jerkings, and wild staring; throwing off the bed-clothes, and making herself naked.

Kreosote.—Putrid state of the womb, after child-birth, (also Carbolic acid, Salycilic acid); confounding ideas; loss of memory; thinks herself well, discharge of dark offensive blood from the womb.

Lachesis.—Lochia fetid; urine suppressed; face purple; unconscious; abdomen swollen; constantly lifting the bed-clothes from the abdomen, on account of an uneasy feeling, caused by them; the pain in the uterus is relieved by a flow of blood for the time being, but returns soon afterwards.

Merc.—Lancinating, boring or pressing pains in the genital organs; very sensitive about the pit of the stomach and abdomen; moist, soft tongue, showing the imprints of the teeth, accompanied occasionally with great thirst; profuse sweat, without relief; symptoms worse at night.

Nux Vomica.—Feeling of heaviness and burning in the genital organs and abdomen; suppression, or else too profuse a discharge of the lochia, with violent pain in the small of the back; pain, as if bruised, in the neck of the uterus; constipation, with frequent and ineffectual urging to stool; symptoms worse in the morning.

Rhus. tox.—Constant restless moving; cannot lie still; dry tongue, with red tip; red rash on the breast; powerlessness of the lower limbs; typhoid symptoms; lochia vitiated and offensive.

Secale, where there is no strong tendency to putrescence; abdomen distended, not very painful, discharge from the vagina brownish, offensive; burning hot fever, interrupted by shaking chill; great anguish, pain in the pit of the stomach, vomiting of decomposed matter, offensive diarrhœa, suppressed secretion of urine; the skin is covered with petechial and miliary eruptions, or shows discolored, inflamed places, with a tendency to mortification; the patient lies either in quiet delirium, or grows wild with great anxiety, and a constant desire to get out of bed.

Accessory Means.—Frequent small draughts of cold water should be given; this relieves the thirst, and promotes perspiration. Barley, milk, or strong beef-tea between the doses of medicine will help to keep up the patient's strength; even stimulants may be required; brandy or milk are found the best. Hot water will relieve vomiting; but better still is a grain of sulphocarbolate of soda dissolved in half a glass of water; a teaspoonful every few hours. Perfect rest and quiet, with absence of all appearance of excitement or alarm in the attendants, are necessary. Occasional sponging of the body with tepid water is soothing, and if there is much abdominal distention and tenderness, a dry heated bran or hop poultice, or turpentine used as a liniment, is the best local application. Repeated fomentations

and lavements of the vagina are valuable; indeed, if the parts are sponged with hot water three or four times a day, there would be fewer cases of this fever. The napkins should be frequently examined, and all foul discharges effectually cleansed away, and disinfected with Permanganate of Potash. Indeed, when the discharges are offensive, it is well to inject up the vagina some warm water, to which a few drops of Permanganate of Potash have been added.

METRITIS.—Inflammation of the womb is met with under two forms, viz.: the acute and the chronic. Acute metritis may happen as one of the morbid sequelæ of parturition, or at other periods independent of it, but the symptoms and treatment are much the same under both circumstances. Puerperal metritis usually attacks the patient during the first ten days after confinement.

The inflammation may be moderate and circumscribed, occupying the lining membrane of the uterus, or its substance, and is then less disposed to extend, the symptoms not being severe or alarming. This often happens when a patient has caught a cold just previous to the commencement of labor, the impressibility of the organ being then considerable. The symptoms, in this case, show themselves the day after delivery; the after-pains are found unusually acute; there are chilliness, febrile heat and thirst; the pulse being 90 or 100; headache; tenderness on pressure of the uterus through the abdominal parietes; pain on movement of the body; and, on turning over to the side, a feeling as of a large body falling over in the pelvis, causing pain; the lochia are scanty, or suppressed; pain is also excited on extending the lower limbs; there is painful micturition, and defæcation; the after-pains are increased on putting the child to the breast.

Metritis, however, may occur in the unimpregnated uterus at any period of life. The symptoms are less severe, and the acute stage more transient, and more readily passing into the chronic state; it more frequently happens about the period of the decline of the menses, and is more frequent in married than in single women.

Uterine Phlebitis is a form of metritis which is difficult to describe by any set of symptoms peculiar to itself. Inflammation of the veins of the uterus may occur as a simple form of disease, but it seldom continues without the complication of disease of contiguous structures. It usually attacks the vessels exposed to the removal of the placenta, and may be confined to that side of the uterus, and extend to the Fallopian tubes and ovaries, or it may occupy the veins of both sides of the organ, and be limited to their coats. In some instances it is extended to the iliac veins, or even to the vena cava itself; softening of the muscular structure of the uterus, alterations in the condition of the veins, and the formation of pus, are the morbid consequences of uterine phlebitis. It is generally caused by difficulties during labor; cold air finding its way to the organs immediately after the separation of the placenta; the decomposition of a portion of adherent placenta, or of coagulum retained in the uterus, and the consequent contamination of the blood in the adjacent vessels; while its predisposing causes are the ordinary exhaustion and susceptibility attendant on the puerperal state, a varicose condition of the uterine vessels, with flooding and depressing emotions.

The especial symptoms which may be said to belong to this disease, when it occurs as an idiopathic affection, are—rigors, with dull pain in the uterus, which is tender on pressure, and a sense of weight in the pelvis, acute pain just above Poupart's ligament: suppression, or great diminution of the lochia or milk; frequent pulse; uneasiness, with depression, nausea, vomitings, and headache. The skin becomes hot, the pulse soft and expanded, not contracted and hard, as in peritonitis; bilious vomitings occur; incoherency, or a tendency to delirium, a certain agitation, with extreme exhaustion, followed by drowsiness and insensibility. With these there are also dysuria, scanty or suppressed urine, irregular state of the bowels; and, as the disease advances, typhoid symptoms set in, with petechiæ, etc., evidencing all the conditions of a dangerous malady. When complicated with inflammation of the peritoneum, or of the lining membrane of the uterus itself, the symptoms of those con-

ditions are so mixed up with those now described, that an accurate diagnosis, founded upon the several pathological phenomena, is most difficult.

THERAPEUTICS OF METRITIS AND PHLEBITIS:

Aconite, especially if the attack was ushered in by violent chills, followed by excessive heat, with a full pulse and flushed face, beating headache, or a feeling as if the head was too full and would burst; if it was caused by a fright or chill.

Belladonna, when there is suppression of the lochia, or it is of a fetid ichorous nature, with a sense of heat and fulness in the vagina; bearing down in the uterine region as if everything would issue from the vagina; sharp burning pains above the os pubis, and pain in the back, as if it were broken; pains commence suddenly and cease just as suddenly; aggravation by the least jar, etc.

Bryonia, if there be anxiety about recovery, dread of the future, a turgid state of the breasts, headache, pain in the small of the back, sensation deep in the abdomen as of a lump there, with heat, vomiting of bilious liquid; aggravation by the least motion.

Coffea, if caused by a sudden unexpected joy.

Chamomilla, if caused by anger.

Colocynth, if caused by violent indignation.

Mercurius, especially if the pain is of a lancinating, aching or boring character, and if there is profuse perspiration which does not relieve.

Nux Vomica is indicated by the following symptoms: severe aching pains in the uterine region, aggravated by pressure or internal contact; violent pains in the loins; stinging and bruising pains in the abdomen, during movement, cough, or sneezing; heat in the vagina, with swelling and tenderness of the os uteri; frequent ineffectual urging to stool; aggravation in the morning. *For further remedies see puerperal peritonitis.*

ACCESSORY MEANS.—Rest as complete as possible, simple diet, with cooling drinks, poultices, and fomentations of hot water. In the early stage of the disease the patient may sit in hot water for twenty to thirty minutes, with the shoulders and

feet covered. She must retain the recumbent posture till all the inflammatory symptoms have subsided.

Puerperal Thrombosis and Embolia.—In women who have been lately delivered, especially when there has been hemorrhage from inefficient uterine contraction after labor, the sudden occurrence of dyspnœa, palpitation, and syncope is an alarming symptom, because it usually denotes an altered condition of the blood, which has led to the formation of clots, and consequent obstruction of the pulmonary circulation.

The pathology of puerperal thrombosis and embolia is very well explained by Dr. Barnes, in a paper which was published in the "Obstetrical Transactions," for 1863. It is thus described:

1. "There is a dyscrasia of the blood immediately proceeding from the puerperal process, which is favorable to the production of clots in the uterine veins and veins of the lower extremities. Imperfect contraction of the uterus, the formation of putrilage in the uterine cavity from the admission of air, which acts upon the blood and serum squeezed out of the vessels, and the remains of adherent placenta or of decidua, are often the immediate antecedent conditions of peripheral thrombosis.

2. "The next step is that of embolia. Portions of the peripheral thrombi, attended, no doubt, in many cases, by septic matter derived from the uterus, are carried to the right heart. If the solid matters be large enough to cause a violent perturbation of the heart's action, and to act chemically on the blood-mass, rapid coagulation of blood in the right cavities may ensue, followed by a similar process in the larger pulmonary arteries. In such cases sudden death occurs.

3. "But in those cases in which either minute portions of thrombi are taken up from the peripheral veins, or when the septic or ichorous matter is less virulent, no clot may form in the right heart, but minute emboli may be carried into the finer divisions of the pulmonary artery, causing lobular pneumonia, ending in slower death, or possibly in recovery.

4. "It has been noticed that, in many of these cases, some mental emotion or sudden exertion has immediately preceded,

and has seemed to be the exciting cause of the cardiac and pulmonic distress."

With respect to the treatment of these cases, Dr. Barnes states: "The point of first importance is to encourage lactation." "The next points are to enforce the recumbent position, to remove all causes of mental or bodily disturbance; not to starve the patient, and thus to give activity to the absorption of foul matters, but to supply the circulating fluid with generous materials."

"The remedies adapted to these cases are stimuli, and especially ammonia, which, besides being a stimulant, is also believed to have a powerful solvent action upon any clots which may have formed in the heart or bloodvessels."

THERAPEUTICS:

Aconitum, hot, dry skin; full, bounding pulse; rigors; dry furred tongue; great thirst.

Belladonna, congestion of head and face, *throbbing headache*, red face, brilliant staring face, dilatation of pupils. In chronic cases, Bell. is indicated by intense dark redness of the parts involved.

Hyoscyamus, low, muttering delirium, starting, and picking with the hands, which are in almost constant motion.

Arsenicum, extreme prostration, dry, brown, and cracked tongue, burning thirst, hot dry skin.

Carbo Veg., venous congestion, with a blue tinge of skin over the whole body, fearful anguish about the heart, and icy-coldness of the surface.

PELVIC CELLULITIS.—This affection comes on insidiously, some two or three weeks after delivery or abortion. It is denoted by fixed pain, swelling, and tenderness, just above the pelvic brim in one iliac region or groin; by hardness and tenderness, on vaginal examination, in the neighborhood of the os uteri, and by painful micturition and defecation. There is much accompanying general disturbance, quick pulse, hectic fever, and loss of appetite. Suppuration is denoted by rigors and increased severity of the local tenderness and throbbing. The pus may be discharged externally above Poupart's ligament, or into the

vagina, rectum, or bladder. This event usually gives relief to all the symptoms.

In this affection the inflammatory effusion appears to be the result of absorption of irritant matters from the uterine surface. The actual seat of the effusion is usually the meshes of the areolar tissue surrounding the uterus, between the folds of the broad ligament; but in some cases there is probably pelvic peritonitis present.

The abscess most frequently bursts into the rectum or bladder, and the case terminates favorably. Sometimes, however, it escapes externally, after burrowing and forming troublesome sinuses, which cause the recovery to be very protracted. In some rare instances it has been known to give way into the peritoneal cavity, and prove rapidly fatal.

THERAPEUTICS:

Ludlam says:

"*Aconite*, the well known effects of aconite in allaying the fever, in equalizing the circulation, in promoting a critical perspiration, or diuresis, and putting an end to threatened local inflammation, renders it very useful in this disease. The disease being consecutive to parturition, and allied as it is in most cases to surgical fever, the earlier this remedy is used, the better."

"*Arnica*, if the patient suffered extremely during labor, if labor was very prolonged, or if it was completed by instrumental aid, arnica may be used both topically and internally. There is no valid objection against alternating aconite and arnica for the relief of these symptoms."

"*Belladonna* has a specific relation to cellulitis, especially if it is of an erysipelatous type or character. In the outset of the attack it may even be preferable to aconite, providing there is not a very high degree of fever, and the nervous symptoms predominate. Given early and rapidly, it may suffice to avert the inflammation, particularly in the case of nervous and delicate women, with arrest of the lochia, meteorism of the abdomen, throbbing headache, delirium and photophobia."

"*Veratrum Viride.*—There is another remedy which I believe to be of incalculable service in the incipient stage of puerperal

cellulitis, as indeed it is in puerperal peritonitis also. That remedy is the veratrum viride. Its wonderful power to control and regulate the vascular movements, to equalize the circulation, and, as it were, to stamp out a local congestion that would almost inevitably result in inflammation, is being recognized by physicians of all schools."

"Accessories.—"In addition to the faithful employment of one or more of these internal remedies, it may serve a good purpose, and can do no possible harm, to resort to the local use of dry heat by means of hot flannels, or of a dinner plate that has been immersed in hot water, wrapped in flannel and then placed directly over the seat of the pain. Sometimes great good can be effected by applications of towels or cloths wrung out of hot water, and frequently repeated. But best of all is the simple, old-fashioned bran poultice that I have so frequently recommended you not to forget in cases of threatened puerperal inflammation of whatever variety."

"For the stage of effusion, which in many, and perhaps in a majority of cases (as you will be called to them in private practice), can not be averted, a different class of remedies are certain to be indicated. Prominent among these are Apis Mellifica, Arsenicum Alb., Bryonia, Rhus Toxicodendron, Digitalis, Cantharis, Mercurius Sol., Stibium, Helleborus Niger, Colchicum and Sulphur, which may be given according to the particular symptoms, or group of symptoms that are present."

"Concerning the use of the Apis Mel., which is an invaluable remedy at this stage of the complaint, I am of the opinion that many physicians have failed with it because the preparation which they have given has not been trustworthy. In 1868, my friend, Dr. J. D. Craig, of Niles, Mich., sent me a trituration of the remedy which he had prepared and prescribed with excellent effect. His method was to extract the sting of the honey-bee, and its poison-bag also, with a pair of forceps, and then to triturate these with the saccharum lactis in the proportion of two grains of sugar to one sting. This he called the first trituration, from which others could be made in the usual manner. I have prescribed this preparation in the second stage of cellu-

litis, and in dropsical disease, with good effect, and can therefore recommend it to you."

"But, if you desire to facilitate resolution, and to counteract the tendency to suppuration (which indications are identical), it is indispensable for you to put your patient upon a good diet. If the digestion is impaired, and food can not be taken, or tolerated, that disorder should be corrected as speedily as possible. And, when it is remedied, you must see to it that your patient is not starved into the very condition that you wish to avoid. For in most cases of this kind, the quantity of serum effused, the size of the tumor, and the risk of abscess bear a proper relation to the impaired quality of the blood, and to the too rapid destruction of tissue that is going on in the system. And, unless the patient's strength is fortified against it, you will learn when it is too late, that either a passive, but very extensive, infiltration of serum has taken place, or that pus has already been formed and is seeking an outlet."

"Under these circumstances, therefore, do not permit the febrile condition to mislead you. If such a result were desirable, a rigid diet would be the very best means of inducing a hectic fever and its attendant symptoms. For, the weaker your patient, the greater the liability to fever and to the non-removal of the tumor, excepting through the process of suppuration. In puerperal women, especially, whose strength have been taxed during gestation, and who have survived the martyrdom of labor, there is a strong predisposition to the *diathese de suppuration* of Trousseau. If you persist in keeping them upon an insufficient aliment, the best chosen remedies will not help you out of the difficulty. Indeed this is one of those conditions in which good food may be worth more than medicine."

"Nor do I know of anything that is more beneficial in some of these cases than certain preparations of alcohol. There is no danger of exciting inflammation or fever by the proper use of the best brandy, or whisky. Stimulation will be well borne, and may bridge over the chasm. The alcohol acts most beneficially if mixed with some nutrient, as for example, with milk, the whites of eggs, or beaf tea. Two or three table-spoonfuls

of milk punch may be given every one to four hours, according to circumstances, and continued until the crisis has passed. Wine will not suffice. The malt liquors will answer a better purpose farther on."

"Certain external means may conduce to the same end. I have great confidence in the bran poultice already recommended. It may be applied day and night for an indefinite period. Where the induration, or rather, the tumor is above the brim of the pelvis, an excellent expedient, designed to facilitate its resolution, is the local application of the camphorated oil, which consists, as you know, of gum camphor dissolved in olive oil. The inflamed region should be thoroughly anointed with it, and then covered with a thick layer of cotton batting. If the pain is very acute, and more especially if it is ovarian, one part of the tincture of hamamelis may be added to four parts of hot water, and applied topically by means of a compress. If the cellulitis is of a traumatic origin, arnica may be used in the same way. A blister would de-vitalize the tissues and do positive harm, and so also would tincture of iodine. Absolute rest is indispensable to the cure."

"The best general rule for the treatment of the suppurative stage is to avert it if you can, but to promote the discharge of pus if you must. If you find that an abscess really is forming, no matter where the fluctuation may first be observed, give the patient Hepar Sulphuris, Calcarea Carb., Mercurius Sol., Sulphur, or such other remedies as the symptoms may require. Or, if the discharge has already been too copious and long continued, Silicea may be prescribed with a view to its arrest."

"Emollients of linseed meal, slippery elm, or bread and milk, hot fomentations and the hip-bath will sometimes afford relief to the pain and hasten the formation and discharge of pus. Or you may apply warm water per vaginam by means of a syphon, so as to facilitate the same process internally."

"If the abscess points externally (and it is most desirable that it should do so,) it may and should be lanced as soon as it is ready to discharge. Wait until the integument covering the tumor has softened and become thin; and be careful to make

the puncture as low down as possible, in order not to open the cavity of the peritoneum. It is safest to cut close to Poupart's ligament, more especially from the middle portion of that ligament outwards, in order to shun the sheath of the femoral vessels. Some authorities recommend to make a valvular incision in opening these abscesses, in order to avoid the possible introduction of air into the abdominal cavity."

"Unless there is a very decided fluctuation of the tumor along some portion of the vaginal wall or roof, or you are positive concerning the presence of pus therein—from having brought it away with exploring needle—you will not be warranted in opening it per vaginam. For there is danger in such a case of wounding some of the pelvic viscera. But when there is a point of fluctuation, you may puncture very carefully and evacuate it as you would if it were a more accessible hæmatoma. It is safer, as in hæmatocele, to lance such an abscess through the vaginal septum, than from the rectal side of the tumor, because of the greater number of small vessels that are supplied to the latter. Whenever it is possible the sac should be entirely emptied, else a fistula may form and remain."

"After the abscess has been evacuated, it may be poulticed again for a short time, and then dressed with a lotion of calendula, or of a weak solution of carbolic acid in water. If fistulæ have formed, either of these mixtures may be injected into them."

Phlegmasia Alba Dolens.—This disease usually comes on about ten days or a fortnight after delivery. It sets in with rigors, headache, quick pulse, restlessness, and general *malaise*. These are speedily followed by pain and tenderness in the hypogastrium or groin, extending down the thigh and leg of that side; the whole limb then becomes greatly enlarged, and at the same time hot, tense, elastic, white, and shining. The femoral veins and lympathics are hard, knotted, and tender to the touch. There is much accompanying constitutional irritation, feverishness, and want of sleep. The tongue is furred, the face is pallid, the milk and lochia usually much diminished. These symptoms

commonly pass off in two or three weeks, but the limb may remain stiff and lame for a much longer period.

There has been much discussion at various times as to the pathology of phlegmasia dolens, or "white leg," as it is vulgarly called. It now seems pretty well established, that the disease consists in an inflammation and obstruction of the principal veins, and also lympathics, of the limb affected; and this inflammation, in most instances, is due to the imbibition of poison by the uterine veins; the disease is therefore a kind of puerperal phlebitis.

The pain and swelling do not always progress from above downwards. The disease sometimes commences in the calf of the leg, which is the seat of a violent cramp-like pain, speedily succeeded by swelling.

The limb affected may increase to at least double its ordinary size. The swelling is so firm and elastic, that it very seldom pits on pressure, and is scarcely influenced in any way by position.

It occasionally happens, that, as soon as the disease has abated in one leg, the other is attacked, and goes through a similar course, except that the symptoms are scarcely ever so severe. In some rare cases both legs are attacked at once.

THERAPEUTICS:

Aconitum should be used in the febrile state, when distinct inflammatory fever is present, with hot skin, dry tongue, parched lips, thirst, quick and hard pulse.

Arnica is the most useful in the earliest stage, especially when the pain has commenced at the time the child's head was passing out of the pelvis, exerting more than ordinary pressure upon the vessels and nerves; it is likewise occasionally serviceable in the chronic stage.

Belladonna is useful after Aconite, or in any subsequent stage, to relieve the crampy pain of the calf, together with the swelling and inflammation of blood-vessels and absorbents. Its chief indications are:—tearing pain in the lower extremity, rending in the joints, etc.; weight in the thighs, pressure in the right; lancinations as with knives.

Bryonia is of advantage after Aconite or Belladonna, when the swelling continues in a chronic state, or with crampy pain in the calf, etc. Its principal symptoms are:—drawing in the hips and lower extremity; shooting from the hip or haunches to the foot, sometimes with general sweat, and impossibility of bearing the least touch or movement; drawing sensation as if the menses were coming on; painful, tensive stiffness; swelling of the thigh, without redness, etc. It is most suitable when vascular irritation is present, and in plethoric subjects.

Hamamelis Virg. is of the greatest benefit in inflammation of the veins, and should especially be used in phlegmasia and phlebitis.

Pulsatilla, besides its great sympathy with the sexual diseases of woman, exercises a specific action upon the venous system, as indicated in the swelling of the vessels of the hands and legs in many of its symptoms, and in its producing varices; consequently it has a specific action upon phlebitis and puerperal phlebitis when accompanied by suppression of the lochia.

Rhus. is indicated when there is powerlessness of the limb, with chronic swelling, or a typhoid condition of the system.

Arsenicum, when the system is much depressed, the limb tumid, and œdematous, the constitution cachectic, exhibiting an impaired vitality, when the pain is worse at night and of a burning character. If typhoid symptoms occur, with low delirium; or if there be slow hectic, with melancholy, excessive anguish, and apprehensiveness at night.

Mercurius is useful after Belladonna or Bryonia; it promotes absorption, and is indicated when suppuration threatens or is present, and in the hectic fever which accompanies it.

China may be given when there is great debility of the system, a cachectic constitution, with tumefaction of the limb, especially if the patient has suffered much from hemorrhage.

Sulphur is very useful intermediately with any of the above, if any latent constitutional taint is supposed to exist. It assists the action of the other medicines, and promotes absorption. It should be given whenever the numbness, heaviness, and powerlessness of the limb are great.

Antimonium is indicated when the swelling is considerable, is in a chronic state, and the red lines of the absorbents are traceable upon the skin, and a disposition to dry gangrene shows itself.

Calcarea is applicable when the disease occurs in a strumous or cachectic constitution.

Iodium will be useful under similar circumstances.

Sepia is best indicated when the disease is connected with congestion, or chronic inflammation of the uterus.

ACCESSORIES.—In this disease as in all other inflammatory disorders, rest in the recumbent posture is to be strictly enjoined in addition to which cloths wrung out of hot water may be applied, also bags of hot hops or salt. If the inflammation results in the formation of pus, the moment fluctuation is discovered, the lancet should be used to evacuate the pus, or otherwise it is liable to burrow along the muscles of the thigh, and may lead to psoas abscesses.

PUERPERAL MANIA.—This form of insanity may show itself as acute mania, or assume the more chronic form, melancholia. The first kind commences very soon after labor; the pulse continues very frequent, and the excitement of the second stage, instead of abating, increases to a wild delirium, which, if not relieved, may end in coma, paralysis, and death. The second and more common kind usually commences two or three days after labor, when the flow of milk sets in, or at a still later period; and is very apt to assume the form of religious melancholy. The patient is captious, suspicious, and liable to take sudden and unaccountable aversions to those about her. The bowels are usually constipated, and the secretions much vitiated. If fever be present, it is of a low form, and there is a general want of power in the system.

When the acute form of puerperal mania terminates fatally, the *post-mortem* appearances usually found are—thickening and opacity of the cerebral membranes, together with vascularity, softening, and effusions of blood or serum in the brain or membranes. This form appears in some instances to be nothing more than a particular kind of puerperal fever. In the chronic

form there is usually headache, offensive breath, a sunken appearance of the eye, and pallor, or sallowness of the countenance. If there is any accompanying fever, it is of a low type. This kind appears to be mostly connected with derangement of the digestive organs. In other instances it has been clearly traceable to exhaustion, arising from profuse hemorrhage during labor, or from over-lactation.

THERAPEUTICS:

Stramonium, violent rage, with constant use of abusive language.

Hyoscyamus.—Jealousy; fits of violence, alternating with moroseness, restlessness in sleep, etc.

Ignatia, persistent *silent melancholy*; tearfulness; obstinacy.

China, mania following *prolonged lactation*, or *flooding*; recurrent headache.

Cannabis Indica, catalepsy; imagines she is the Queen or the Virgin Mary, etc.

Belladonna, violent delirium from sudden lochial suppression. Staring eyes, hot skin, suppressed urine, etc.

Veratrum Album, great anguish of mind, and self-condemnation.

Ferri et Strychniæ Cit, Anæmia; slow, weak pulse; Constipation.

ADDITIONAL REMEDIES.—One or more of the following are occasionally required, more particularly in melancholia: *Cimic.*, *Plat.*, *Ars.*, *Puls.*, *Aur.*, and *Hydrate of Chloral*. *Ver.-Vir.* is also often valuable for Puerperal Mania.

Accessory Means—The patient should be placed under the care of a humane and experienced nurse, who can be with her night and day; and unless the symptoms are soon amenable to the remedies, the patient should be separated from her family. The diet should be digestible and nourishing, including beef-tea, eggs, milk-and-soda-water; and when there is great prostration, brandy or wine. The food should be given regularly, at short intervals. In acute mania a wet-pack or a hot bath is very advantageous.

If the child is yet unborn, the process of nature cannot be interfered with to any advantage. In Acute Mania, the infant may be allowed the breast again as soon as the symptoms have well subsided. In Melancholia, weaning is at once imperative.

CHAPTER III.

DISEASES OF THE NEW-BORN INFANT.

(From LEADAM.)

"ECCHYMOSIS OR BLOOD-SPOTS on the Surface of the Scalp. These exudations are the effect of pressure, and are soon removed by absorption; but, as they are not agreeable objects to the mother, a lotion of *Arnica* may be used to expedite their removal.

DEFORMITIES OR MONSTROSITIES.—In all cases of deformity, it is advisable to administer, as soon as convenient after birth, a few doses of *Sulphur*, and *Calcarea*, alternated at intervals of two or three weeks. Many deformities may be corrected by these means; for, inasmuch as the abnormal deviations are dependent upon a misdirection of the vital force in the formation of the organs of tissues, the remedy which is known to exert its peculiar action upon the parts affected, will, by restoring the normal action (of the vital force?) in those tissues, cut off, or obtain a resolution of the deformities.

If the deviation has occurred in the osseous tissues, after the above-named medicines, *Silicea* should be given, at a high attenuation, and at distant intervals.

MATERNAL MARKS.—The marks or spots which appear at the periphery of the body of the new-born infant are the result of a failure in the organic tissues of the skin, and usually of an excessive development of the capillaries or minute terminal vessels.

The same medicines which have been recommended in the preceding article will be found equally useful in this, and the earlier they are given the more successful will they prove.

Calcarea carb. is the most beneficial medicine of the class, and is the one to be preferred, if no particular indications are present. It may, however, generally be preceded by *Sulphur.*

CYANOSIS.—When the septum which divides the two sides of the heart at the auricular part is not perfectly closed, as it should be, by the obliteration of the foramen ovale, the continued mixture of the black and red blood causes the circulation of an imperfectly-oxygenised fluid. This circumstance produces a blueness of the surface, which gives rise to the term "blue disease." It generally destroys life at an early period; but sometimes the adult age may be reached, with some distress and impaired health. Here also *Sulphur* and *Calcarea* are the remedies which should be administered as soon after birth as possible. Afterwards *Digitalis* may be given, alternated with *Calcarea* at two or three months' interval.

HERNIÆ.—Rupture may occur at, or soon after, birth, when it is found to be either *umbilical* or *inguinal*. It may be cured in a few weeks by *Sulphur*. If, after fifteen days, the swelling still shows itself, *Nux vomica* is to be given night and morning, and *Bellad.* every three hours. When the rupture is connected with diarrhœa, *Chamomilla* will be found very successful, even in causing a permanent reduction of the hernia. In the same manner, any remedy directed against the accidental or accompanying symptoms, will often be attended by a successful result.

SWELLING AND HARDNESS OF THE BREASTS.—The absurd practice that some nurses have of squeezing the breasts of new-born infants is the cause of this painful affection. Nurses often impose upon the mother's feelings by telling them the child (if a female) will not be able to perform its maternal duty in after-life, if the milk is not squeezed out, than which nothing can be more erroneous. In fact, observation has proved, that the swelling and hardness, and, if roughly treated, the subsequent gathering of the breasts of infants, occur rather more frequently in male than in female infants. It therefore cannot be too strongly opposed, as the vulgar prejudice often gives rise to abscess, and consequent suffering to the little patient.

Arnica, will disperse it, if no redness has yet appeared.

Chamomilla or *Bryonia*, if the surface is already inflamed.

Belladonna, if the redness is of an erysipelatous character.

Aconite should precede these medicines, if the inflammation is vivid and hot.

Hepar s., if there is formation of matter; and the cure should be completed by *Silicea.*

Hiccough.—This is to be remedied by a globule of *Belladonna* or *Nux vom.*, placed upon the tongue, if the ordinary domestic applications fail to relieve.

Coryza, or Cold in the Head.—If the infant's nose is stopped up so as to hinder breathing while at the breast, it should be anointed with cold cream or some other simple unguent, and a globule of *Nux vomica* given. Should relief not be obtained in twenty-four hours, *Sambucus* may be administered. If the nose should run, *Chamomilla* is to be given. When the coryza is aggravated of an evening, *Carbo veget.* is advisable; and if it returns every time the child is exposed to the air, *Dulcamara.*

Ophthalmia of New-born Infants.—This affection of the eyes is sometimes very troublesome and obstinate, and has proceeded to loss of vision, owing to the opacity of the cornea, which has resulted from the continuance of the inflammation. Ulceration of the centre of the cornea has even taken place, and the contents of the globe escaped, which has of course been followed by a shrinking of the eyeball, and permanent blindness and deformity. It is, therefore, of the deepest importance, to arrest speedily this complaint, and thereby avert remote evils of such magnitude. A slight weakness of the eye, with agglutination of the lids and intolerance of light, are first perceived about the second day after birth, the usual application for which is warm water or cream; but if the disease increases, the weeping of the eye becomes puriform, and the conjunctival membrane lining the eyelids, as well as that covering the globe, is red and inflamed.

Aconitum, should be given immediately, and repeated every three hours or three times a day.

Dulcamara, may be made to follow *Aconite.*

Belladonna should be given if the eyes look bloodshot or bleed, and the intolerance is great.

Chamomilla, if the eyelids swell and are closed in the morning.

Euphrasia, when there is much weeping of the eyes, and they are gummed up, with intolerance of light.

Rhus tox., when the lids are chiefly affected, and the child is scrofulous.

Sulph. tinct., if the disease has made considerable progress, and proves obstinate, especially if there is a scrofulous disposition in the family. This should be followed by *Calcarea*, or *Arsenicum*.

Constipation.—If the bowels are rather tardy, but the evacuations of a natural color, it is better not to be too solicitous about them. Nature will generally restore them to their proper course, if not interfered with. It sometimes depends upon the diet of the nurse being too stimulating. If that is the case, the course to be persued is clear. But if not, the infant may have a globule of *Bryonia*, or *Nux Vomica*. If these medicines do not answer the purpose, *Opium* may be given. Should the constipation soon return, a dose of *Sulphur* will be proper.

Alumina is likewise very serviceable in some obstinate cases.

Diarrhœa.—The diarrhœa of infants sometimes depends upon the milk of the nurse, or her diet. If the mind of the mother is agitated by emotions or anxieties, the milk is thin and gripes the child, giving rise to relaxed motions.

Chamomilla may be given if the motions are watery, greenish, or resemble chopped egg, being worse at night; also if the child cries a good deal, and is flatulent.

Rheum., if attended by acidity, cries, colics, and straining; the evacuations being sour and frothy or slimy.

Ipecac is generally useful in this disorder, especially if the evacuations are watery, greenish, or slimy.

Dulcamara, if the diarrhœa returns at every exposure to the cold air.

Bryonia when it is produced by the heats of summer, and is attended by much thirst.

Belladonna when the child is unquiet, but sleeps a good deal, the motions are greenish, and there is paleness of face.

Antimonium, if the tongue is coated white, or yellow and the evacuations are frequent, and watery or pupescent.

Arsenicum, may be given if the infant should be very pale and feeble, the motions hot, irritating, and watery.

Sleeplessness.—This will often be the consequence of moral affections or errors of diet on the part of the nurse. If she drinks coffee habitually, or green tea, it will frequently affect the infant. This must be corrected, and if the wakefulness does not depend on the coffee-drinking of the nurse, then a globule of *Coffea* may be given.

Chamomilla should be given if the child suffers at the same time from flatulence and stomach-ache.

Opium, if the face is red and turgid.

Belladonna, if the child cannot sleep, though drowsy, and starts up with cries, etc.

Cries of Infants.—When a child is in health, it seldom cries, and a happy state of smiling innocency betokens the calm of the body; therefore, the cause should be sought for diligently, which will generally be found in the state of the bowels. These will either be troubled with flatulence, or the fæcal contents are of an irritating or griping character; this will be evinced by the child drawing up its knees forcibly to the belly every time it cries, and a tumid state of the abdomen, or there may be pain in the ears, or the head.

Aconitum should be given, if the face is red and the body burning hot, which may be repeated after six hours, if the state persists.

Coffea, if the cries are violent, and attended with agitation, which nothing will calm, or else *Chamomilla*.

Retention of Urine.—Infants are sometimes reported by the nurse to have passed no water for, perhaps, twenty-four hours. If no mechanical or corporeal impediment is found to exist, the child should be allowed to smell *tincture of Camphor*.

Aconitum may be given afterwards in the course of an hour or two.

If that does not prove successful, give *Pulsatilla or Nux vomica*. The latter if constipation exists.

PROFUSE URINATION.—When there is a copious emission of pale, colorless urine, causing the child to be fretful and look pale, *Phosphoric acid* or *Silicea* are the most suitable.

INTERTRIGO OR CHAFINGS.—This troublesome affection, which consists in a soreness or excoriation of the nates, the groins, the back of the ears, the arm-pits, or folds of the neck, may generally be prevented by great attention to cleanliness. It depends upon the excretions either from the bowels, the bladder, or the skin, remaining too long in contact with the parts, and setting up irritation, which sometimes proceeds to ulceration. The removal of this cause is, therefore, the first essential part of the treatment. The part should be kept well washed with tepid or cold water, without soap, and then powdered with fine starch-powder.

It is sometimes dependent upon acid secretions in the *primæ viæ* (or bowels,) which render the excretions unusually irritating, and the excoriating parts not unfrequently discharge matter copiously.

The child should not be kept so hot as to make it perspire to freely, and it should be frequently changed.

Sulphur may be administered first. Two globules, dissolved in a tablespoonful of water, a teaspoonful to be given every night.

Chamomilla should then be given in the same manner, if the child is irritable, and passionate, or cries much.

Graphites, or *Lycopodium* may be selected after this, if the chafings are not healed.

Calcarea is suitable after the former, if required, especially if the ears are bad; but a proper interval must be allowed between the remedies.

APHTHÆ, OR THRUSH.—This often attacks the infant in the second week, and if characterised by the mouth and tongue being covered with minute white blisters, which are rubbed off by action of sucking. A succession of these vesicles is constantly taking place so long as the disease lasts, which is sometimes five or six weeks.

It is often predicated by a red granular appearance of the tip of the tongue a few days after birth, which is caused by enlargement of the papillæ.

The thrush often runs in families, and is a disease of debility; but is generally caused by irritating secretions in the alimentary canal, from bad digestion or improper food,

When it once occurs in the mouth, it more generally traverses the whole length of the alimentary canal, and appears at the anus, with redness and excoriation; but this is not necessary to take place before it is cured, as is frequently supposed. Neither is it important that the child should have it at birth, from the idea if it does not, it must at its death, which, differently interpreted, means that it will die from it at some time or other. This is a vulgar notion, which nurses indulge in.

The infant should not be smothered up too much in the mother's bed, but be allowed to get as much pure air as is suitable for its tender age; and, if it is fed, care must be taken to avoid food of too great consistence.

THERAPEUTICS:

Sulph. ac., two globules put in a wine-glassful of water, a teaspoonful to be given every three or four hours, or a globule may be placed upon the tongue.

Muriat. ac., is likewise an excellent remedy.

Mercurius vivus, is also specific in this disease, and can be given in the same manner, especially when there is much saliva in the mouth.

Sulphur, two globules should be administered in the same way, if the disease has not disappeared in five or six days.

Borax, has sometimes succeeded, when the above-mentioned remedies have failed.

Bryonia, *Nux vomica*, *Chamomilla*, and *Arsenicum* are occasionally required.

JAUNDICE.—The infant often turns yellow a few days after birth, which, if it had been previously very red, is simply the transition stage before the skin acquires its natural whiteness. When this yellow tinge is unaccompanied by any other symptom of derangement, as sickness, etc., there is no need of inter-

ference; but if the evacuations are white, and the urine stains deeply, and there be drowsiness, sickness, a tumid state of the abdomen, and the child appears ill, a globule of *Chamomilla*, should be given. This may be followed in twelve hours by *Mercurius sol.*

Aconitum, is most suitable if feverish symptoms attend. Three globules to be dissolved in a wine-glassful of water, one teaspoonful to be given every three or six hours, until cured.

SPASMS OF INFANTS.—Sometimes infants are seized with a difficulty of respiration, or apparent suffocation, which is attended with paleness of the face, intermittent pulse, and general distress. Administer *Ipecac*, a globule placed upon the tongue and repeated in half an hour, if not relieved.

When this does not succeed, *Sambucus niger* may be given in the same way.

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